CHAPTER 8

DIRECT DIGITAL CONTROL IMPLEMENTATION

- 1. GENERAL. The programs described in Chapter 7 can be applied to existing or new systems. Most of these programs may be applied to several types of systems, but others may only be applicable to special types of systems. For example, the boiler monitoring and control program is only applicable to facilities with boiler plants. Due to the interactive nature of the programs, the inputs and/or outputs of one implemented program may provide inputs to other programs.
- 2. INSTRUMENTS AND INPUTS. Certain instruments and inputs can be common to an entire building or, in some case, the entire UMCS. Electrical consumption and demand instrumentation do not need to be duplicated except in special cases, such as when a UMCS serves an extremely large geographical area, or multiple utility substations. When applications require OA measurement, the minimum requirement is one OA temperature and one RH instrument (when used) for each building. However, the designer may need to increase the minimum requirements to satisfy site specific building and system conditions. For example, separate OA instruments will be specified where intake temperatures of the OA measured on a roof mounted unit may vary significantly from other air intake locations, causing erroneous economizer calculations.
- 3. DIAGRAMS. Graphic diagrams of typical systems showing UMCS devices and functions for direct control implementation are provided in Figures 8-1 through 8-16. Failure modes will be defined by the designer for each system's controlled devices in the event of a field equipment panel malfunction. Failure modes will be based on climate, type of system, and user requirements. The failure modes shown are for example purposes only.
- 4. TABLES. Database tables listing UMCS software and settings applied to typical systems are provided in Tables 8-1 through 8-16. The designer will generate a separate database table for each system to be controlled or monitored by the UMCS. Two or more identical systems within the same building, having the same occupancy schedule, may be listed on the same database table. The table's contents and setpoint values will be tailored to the system being controlled for each specific application.
- 5. SYMBOLS AND ABBREVIATIONS. A listing of symbols and abbreviations used in the system schematics is provided in Appendix B.
- 6. SEQUENCES OF OPERATION. The design will include a sequence of operations for each system under direct digital control of the UMCS. The sequence of operations will be tailored for the specific site, system and application. Sequences of operation will identify required control loop accuracy when different from default requirements identified in the guide specification CEGS-16935. Sequences of operation for typical HVAC systems are provided in the following paragraphs. These sequences are keyed to the corresponding figures and tables.
- a. Steam/Hot Water Converter and Primary/Secondary Heating System Sequence of Operation (Figure 8-1 and Table 8-1).
- (1) All Modes. The UMCS will start and stop the primary and secondary pumps in sequence based on the signal from an outside-air temperature sensor as shown. The UMCS will enable control of the steam/hot water converter control valve when the primary pump is operating. The UMCS will control the primary loop hot water supply temperature by modulating the steam control valve in response to a temperature sensor element and transmitter located in the hot water supply line to maintain its setpoint. The UMCS will reset the hot water supply temperature setpoint with respect to the outside air temperature in a linear schedule as shown.

(2) Occupied Mode. The UMCS will modulate the secondary heating control valve when the secondary zone pump is operating) to maintain the heating zone occupied space temperature setpoint.

- (3) Unoccupied Mode. The UMCS will modulate the secondary heating control valve (when the secondary zone pump is operating) to maintaining the heating zone unoccupied space temperature.
- b. Hot Water Boiler and Primary/Secondary Heating System Sequence of Operation Figure 8-2 and Table 8-2).
- (1) All Modes. The UMCS will start and stop the primary and secondary pumps in sequence based on the signal from an outside-air temperature sensor as shown. The UMCS will enable local control of the hot water boiler when the primary pump is operating. The UMCS will control the primary loop hot water supply temperature by modulating the hot water boiler bypass valve in response to a temperature sensor located in the hot water supply line to maintain its setpoint. The UMCS will reset the hot water supply temperature setpoint with respect to outside air temperature in a linear schedule as shown. Reduced-flow control of the hot water bypass valve will be coordinated with the boiler manufacturer's recommendations and boiler safety settings. The UMCS will disable boiler operation when the primary pump is off.
- (2) Occupied Mode. The UMCS will modulate the secondary heating control valve (when the secondary zone pump is operating) to maintain the heating zone occupied space temperature setpoint.
- (3) Unoccupied Mode. The UMCS will modulate the secondary heating control valve (when the secondary zone pump is operating) to maintaining the heating zone unoccupied space temperature.
- c. Hot Water Boiler with Constant Volume Circulating Loop and Primary/Secondary Heating System Sequence of Operation (Figure 8-3 and Table 8-3).
- (1) All Modes. The UMCS will start and stop the primary and secondary pumps in sequence based on the signal from an outside-air temperature sensor as shown. The UMCS will enable local control of the hot water boiler and boiler circulating pump when the primary pump is operating. The UMCS will control the primary loop hot water supply temperature by modulating the hot water boiler bypass valve in response to a temperature sensor located in the hot water supply line to maintain its setpoint. The UMCS will reset the hot water supply temperature setpoint with respect to outside air temperature in a linear schedule as shown. Reduced-flow control of the hot water bypass valve will be coordinated with the boiler manufacturer's recommendations and boiler safety settings. The UMCS will disable boiler operation when the primary pump is off. The boiler circulating pump will remain in operation for a preset adjustable time period after the boiler is disabled.
- (2) Occupied Mode. The UMCS will modulate the secondary heating control valve when the secondary zone pump is operating) to maintain the heating zone occupied space temperature setpoint.
- (3) Unoccupied Mode. The UMCS will modulate the secondary heating control valve when the secondary zone pump is operating) to maintain the heating zone unoccupied space temperature.
- d. High-Temperature Hot Water/Hot Water Converter and Primary/Secondary Heating System Sequence of Operation (Figure 8-4 and Table 8-4).
- (1) All Modes. The UMCS will start and stop the primary and secondary pumps in sequence based on the signal from an outside-air temperature sensor as shown. The UMCS will enable control of the high temperature hot water/hot water converter control valve when the primary pump is operating. The UMCS will control the primary loop hot water supply temperature by modulating the high temperature hot water control valve in response to a temperature sensor located in the hot water supply line to maintain its setpoint. The UMCS will reset the hot water supply temperature setpoint with respect to the outside air temperature in a linear schedule as shown.

(2) Occupied Mode. The UMCS will modulate the secondary heating control valve when the secondary zone pump is operating) to maintain the heating zone occupied space temperature setpoint.

- (3) Unoccupied Mode. The UMCS will modulate the secondary heating control valve when the secondary zone pump is operating) to maintain the heating zone unoccupied space temperature.
- e. Steam/Hot Water Converter with Dual Temperature Distribution System Sequence of Operation (Figure 8-5 and Table 8-5).
- (1) All Modes. The UMCS will start and stop the distribution pump based on the signal from an outside-air temperature sensor as shown. The UMCS will enable control of the steam/hot water converter control valve when the distribution pump is operating and the system is in heating mode. When the system is not in heating mode, control of the steam valve will be disabled. Heating and cooling modes will be initiated by the UMCS and confirmed by monitoring the position of the changeover valves. UMCS will not make the heating to cooling changeover until the return water temperature drops below 90 degrees F and will not make the cooling to heating changeover until the return water temperature raises above 60 degrees F.
- (2) Heating Mode. When the heating mode is selected, the system changeover valves will close to the chilled water flow and will open to flow through the steam/hot water converter. The UMCS will control the hot water supply temperature by modulating the steam control valve in response to a temperature sensor in the hot water supply line to maintain its setpoint. The UMCS will reset the hot water supply temperature setpoint with respect to the outside air temperature in a linear schedule as shown.
- (3) Cooling Mode. When the cooling mode is selected, the steam control valve will be closed, the system changeover valves will close to the hot water flow and open to the chilled water flow. Chilled water temperature control will remain under local controls.
- f. High-Temperature Hot Water/ Hot Water Converter with Dual Temperature Distribution System Sequence of Operation (Figure 8-6 and Table 8-6).
- (1) All Modes. The UMCS will start and stop the distribution pump based on the signal from an outside-air temperature sensor as shown. The UMCS will enable control of the high temperature hot water/hot water converter control valve when the distribution pump is operating and the system is in heating mode. When the system is not in heating mode, control of the high temperature hot water valve will be disabled. Heating and cooling modes will be initiated by the UMCS and confirmed by monitoring the position of the changeover valves. UMCS will not make the heating to cooling changeover until the return water temperature drops below 90 degrees F and will not make the cooling to heating changeover until the return water temperature raises above 60 degrees F.
- (2) Heating Mode. When the heating mode is selected, the system changeover valves will close to the chilled water flow and will open to flow through the high temperature hot water converter. The UMCS will control the hot water supply temperature by modulating the high temperature hot water control valve in response to a temperature sensor in the hot water supply line to maintain its setpoint. The UMCS will reset the hot water supply temperature setpoint with respect to the outside air temperature in a linear schedule as shown.
- (3) Cooling Mode. When the cooling mode is selected, the high temperature hot water control valve will be closed, the system changeover valves will close to the hot water flow and open to the chilled water flow. Chilled water temperature control will remain under local controls.
- g. Dual-Temperature System with Hot Water Boiler and Air-Cooled Chiller Sequence of Operation (Figure 8-7 and Table 8-7).

(1) All Modes. The UMCS will start and stop the distribution pump based on the signal from an outside-air temperature sensor as shown. The UMCS will enable control of the hot water boiler bypass valve when pump is operating and the system is in heating mode. When the system is not in heating mode the boiler bypass valve will be disabled. The UMCS will enable control of the air-cooled chiller when the distribution pump is operating and the system is in cooling mode. Heating and cooling modes will be initiated by the UMCS and confirmed by monitoring the position of the changeover valves. UMCS will not make the heating to cooling changeover until the return water temperature drops below 90 degrees F and will not make the cooling to heating changeover until the return water temperature rises above 60 degrees F.

- (2) Heating Mode. When the heating mode is selected, the system changeover valves will close to the chilled water flow and will open to flow through the hot water boiler. The UMCS will enable local control of the hot water boiler. The UMCS will control the hot water supply temperature by modulating the hot water boiler bypass valve in response to a temperature sensor located in the hot water supply line to maintain its setpoint. The UMCS will reset the hot water supply temperature setpoint with respect to the outside air temperature in a linear schedule as shown. Reduced-flow control of the hot water bypass valve will be coordinated with the boiler manufacturer's recommendations and boiler safety settings. The UMCS will disable boiler operation when the distribution pump is off. The UMCS shall reset the hot water supply temperature setpoint with respect to outside air temperature in a linear schedule as shown.
- (3) Cooling Mode. When the cooling mode is selected, the hot water boiler bypass valve will be closed to the boiler, the system changeover valves will close to the hot water flow and open to the chilled water flow. The UMCS will enable local control of the air-cooled chiller and condenser. Chilled water supply temperature will remain under local controls. When the distribution pump is not operating the air-cooled chiller local controls will be disabled.
 - h. Water-Cooled Chiller System Sequence of Operation (Figure 8-8 and Table 8-8).
- (1) All Modes. The UMCS will enable and disable the chiller plant operation based on occupancy schedule, heating/cooling operation, and outside air temperature. When the chiller is stopped, the chilled water and condenser water pumps shall have delayed shutdown after compressor shutdown.
- (2) Chiller Control. The UMCS will first start the chilled water pump and the condenser water pump. The chiller local control interlocks will operate the chiller to maintain a constant chilled water supply temperature after flow has been established. The UMCS will reset the chiller's local control chilled water supply temperature setpoint based on the chilled water temperature as shown.
- (3) Cooling Tower Control. The UMCS will start/stop the cooling tower fan, modulate the condenser water bypass control valve, and select the fan speed as required to maintain condenser water supply temperature setpoint. When the chiller is stopped, the chilled water and condenser water pumps will have delayed shutdown after compressor shutdown.
- i. Multizone Air Handling System with Hot Water and Chilled Water Coils Sequence of Operation (Figure 8-9 and Table 8-9).
 - (1) Outside-Air, Return-Air, and Relief-Air Dampers.
- (a) Occupied Mode. The minimum outside air damper will open. The maximum outside air, return-air, and relief-air dampers will be modulated under mixed-air temperature and economizer control.
 - (b) Unoccupied Mode. The dampers will return to their normal positions as shown.
 - (2) Supply-Fan and Return-Fan Control.

(a) Occupied Mode. Supply and return fans will start in sequence, and will operate continuously.

- (b) Unoccupied Mode. Supply and return fans will be cycled on and off according to the night setback control setpoint.
- (3) Hot-Deck Heating Coil All Modes. The UMCS will modulate the control valve from the signal of a temperature-sensing element and transmitter located in the coil discharge air to maintain the setpoint. The UMCS will reset the hot-deck temperature setpoint with respect to the coldest space zone temperature signal as directed by the hot deck-cold deck temperature reset program.
- (4) Freeze Protection All Modes. A low temperature device, located as shown, will stop the supply and return fans, cause the outside-air, return-air, and relief-air dampers to return to their normal position, and will initiate a low-temperature alarm if the temperature drops below the low temperature device setpoint. Return to the expected mode of operation will require manual reset at the low temperature device. The UMCS will indicate an alarm condition when the low temperature device trips.
 - (5) Cold-Deck Cooling Coil.
- (a) Occupied Mode. The control valve will be modulated by the UMCS from the signal of a temperature-sensor located in the coil discharge air to maintain the setpoint. The UMCS will reset the cold-deck temperature setpoint with respect to the hottest space zone temperature as directed by the hot deck-cold deck temperature reset program.
 - (b) Unoccupied Mode. The UMCS will close the cooling-coil control valve to the coil.
- (6) Mixed-Air Temperature Control. When the UMCS places the system in the economizer operation, it will modulate the dampers from the signal of a temperature sensor in the mixed-air stream to maintain the setpoint based on the conditions shown in Table 8-17.

Table 8-17. Mixed-Air Damper Modulation.

Condition No.	Description	Control
1	OA temperature < SA temperature < Changeover temperature	Modulate OA, RA, and relief dampers to maintain mixed air temperature at cold deck supply temperature setpoint minus 2 degrees F.
2	SA temperature < OA temperature < Changeover temperature	Set OA and relief dampers at 100% open; RA dampers closed.
3	SA temperature < Changeover temperature < OA temperature	Set OA and relief dampers at their minimum positions, and set RA damper at its corresponding open position.

(a) Zone-Damper Control - All Modes. A space temperature sensor for each zone will signal the UMCS to gradually operate the zone-mixing damper to heat and cool its respective zone by mixing cold-deck air and hot-deck air to maintain the zone setpoint. On a rise in space temperature, the hot-deck damper will gradually close, and the cold-deck damper will gradually open.

(b) Smoke Control. Smoke detectors in the supply-air and return-air ductwork will stop the supply fan and the return fan and initiate a smoke alarm if smoke is detected at either location. Restarting the supply fan and the return fan will require manual reset at the smoke detectors.

- j. Dual Duct Air Handling System with Hot Water and Chilled Water Coils Sequence of Operation (Figure 8-10 and Table 8-10).
 - (1) Outside-Air, Return-Air, and Relief-Air Dampers.
- (a) Occupied Mode. The minimum outside-air damper will open. The maximum outside-air, return-air, and relief-air dampers will be modulated under mixed-air temperature and economizer control.
 - (b) Unoccupied Mode. The dampers will return to their normal positions as shown.
 - (2) Supply-Fan and Return-Fan Control.
- (a) Occupied Mode. Supply and return fans will start in sequence, and will operate continuously.
- (b) Unoccupied Mode. Supply and return fans will cycle on and off according to the night setback control setpoint.
- (3) Hot-Deck Heating Coil All modes. The UMCS will modulate the control valve from the signal of a temperature-sensor located in the coil discharge air to maintain the setpoint. The UMCS will reset the hot-deck temperature setpoint with respect to the coldest space zone temperature as directed by the hot deck-cold deck temperature reset program.
- (4) Freeze Protection All Modes. A low temperature device, located as shown, will stop the supply and return fans, cause the outside-air, return-air, and relief-air dampers to return to their normal position, and will initiate a low-temperature alarm if the temperature drops below the low temperature setpoint. Return to the expected mode of operation will require manual reset at the low temperature device. The UMCS will indicate an alarm condition when the low temperature device trips.
 - (5) Cold-Deck Cooling Coil.
- (a) Occupied Mode. The control valve will be modulated by the UMCS from the signal of a temperature-sensor located in the coil discharge air to maintain the setpoint. The UMCS will reset the cold-deck temperature setpoint with respect to the hottest space zone temperature in a linear schedule as shown.
 - (b) Unoccupied Mode. The UMCS will close the cooling-coil control valve to the coil.
- (6) Mixed-Air Temperature Control. When the UMCS places the system in the economizer operation, it will modulate the dampers from the signal of a temperature sensor in the mixed-air stream to maintain the setpoint based on the conditions shown in Table 8-18.

Table 8-18. Mixed-Air Damper Modulation.

Condition No.	<u>Description</u>	<u>Control</u>
1	OA temperature < SA temperature < Changeover temperature	Modulate OA, RA, and relief dampers to maintain mixed air temperature at cold deck supply temperature setpoint minus 2 degrees F.

- (7) Dual-Duct Terminal Box All Modes. A space temperature sensor for each zone will signal the UMCS to gradually operate the control dampers of the dual-duct box to heat and cool its respective zone by mixing cold-deck air and hot-deck air to maintain the zone setpoint. On a rise in space temperature, the hot-deck damper will gradually close, and the cold-deck damper will gradually open.
- (8) Smoke Control. Smoke detectors in the supply-air and return-air ductwork will stop the supply fan and the return fan and initiate a smoke alarm if smoke is detected at either location. Restarting the supply fan and the return fan will require manual reset at the smoke detectors.
- k. Bypass Multizone Air Handling System with Hot Water and Chilled Water Coils Sequence of Operation (Figure 8-11 and Table 8-11).
 - (1) Outside-Air, Return-Air, and Relief-Air Dampers.
- (a) Occupied Mode. The minimum outside-air damper will open. The maximum outside-air, return-air, and relief-air dampers will be modulated under mixed-air temperature and economizer control.
 - (b) Unoccupied Mode. The dampers will return to their normal positions as shown.
 - (2) Supply-Fan and Return-Fan Control.
- (a) Occupied Mode. Supply and return fans will start in sequence and will operate continuously.
- (b) Unoccupied Mode. Supply fan and return fans will cycle on and off according to the night setback control setpoint.
- (3) Freeze Protection All Modes. A low temperature device, located as shown, will stop the supply and return fans, cause the outside-air, return-air, and relief-air dampers to return to their normal position, and will initiate a low-temperature alarm if the temperature drops below the low temperature device setpoint as shown. Return to the expected mode of operation will require manual reset at the low temperature device. The UMCS will indicate an alarm condition when the low temperature device trips.
 - (4) Cold-Deck Cooling Coil.
- (a) Occupied Modes. The control valve will be modulated by the UMCS from the signal of a temperature-sensor located in the coil discharge air to maintain the setpoint. The UMCS shall reset the cold-deck temperature setpoint with respect to the hottest space zone temperature as directed by the hot deck-cold deck temperature reset program.
 - (b) Unoccupied Mode. The UMCS will close the cooling-coil control valve to the coil.
- (5) Mixed-Air Temperature Control. When the UMCS places the system in the economizer operation, it will modulate the dampers from the signal of a temperature sensor in the mixed-air stream to maintain the setpoint based on the conditions shown in Table 8-19.

Table 8-19. Mixed-Air Damper Modulation.

Condition No.	<u>Description</u>	<u>Control</u>
1	OA temperature < SA temperature < Changeover temperature	Modulate OA, RA, and relief dampers to maintain mixed air temperature at cold deck supply temperature setpoint minus 2 degrees F.
2	SA temperature < OA temperature < Changeover temperature	Set OA and relief dampers at 100% open; RA dampers closed.
3	SA temperature < Changeover temperature < OA temperature	Set OA and relief dampers at their minimum positions, and set RA damper at its corresponding open position.

- (6) Zone-Damper and Heating Coil Control All Modes. A space temperature sensor for each zone will signal the UMCS to modulate the zone-mixing damper and heating coil valve to heat and cool its respective zone by mixing cold-deck air and bypass-deck air to maintain the zone setpoint. On a rise in space temperature, the heating coil valve will gradually close, and after a selected dead band the bypass-deck damper will gradually close, and the cold-deck damper will gradually open in sequence.
- (7) Smoke Control. Smoke detectors in the supply-air and return-air ductwork will stop the supply fan and the return fan and initiate a smoke alarm if smoke is detected at either location. Restarting the supply fan and the return fan will require manual reset at the smoke detectors.
- I. VAV Air Handling System with Hot Water and Chilled Water Coils Sequence of Operation (Figure 8-12 and Table 8-12).
 - (1) Outside-Air, Return-Air, and Relief-Air Dampers.
- (a) Occupied Mode. The minimum outside-air damper will open. The maximum outside-air, return-air, and relief-air dampers will be modulated under mixed-air temperature and economizer control.
 - (b) Unoccupied Mode. The dampers will return to their normal positions as shown.
 - (2) Supply-Fan Control.
 - (a) Occupied Mode. The supply fan will start and will operate continuously.
- (b) Unoccupied Mode. The supply fan will cycle on and off according to the night setback schedule setpoint.
- (3) Supply-Duct Pressure Control. When the supply fan starts, the UMCS will modulate the fan inlet vanes from the signal of a static pressure sensor to maintain the setpoint. When the fan is off the inlet vanes will be closed.
- (4) Freeze Protection All Modes. A low temperature device, located as shown, will stop the supply fan, cause the outside-air, return-air, and relief-air dampers to return to their normal position, and will initiate a low-temperature alarm if the temperature drops below the low temperature device's setpoint.

Return to the normal mode of operation will require manual reset at the low temperature device. The UMCS will indicate an alarm condition when the low temperature device trips.

- (5) Cooling-Deck Coil and Preheat Coil Control.
- (a) Occupied Mode. The control valves will be modulated in sequence by the UMCS from the signal of a temperature-sensor located in the fan discharge- air duct to maintain the setpoint.
- (b) Unoccupied Mode. The UMCS will close the cooling-coil control valve to the coil and will open the preheat-coil control valve to the coil.
- (6) Mixed-Air Temperature Control. When the UMCS places the system in the economizer operation, it will modulate the dampers from the signal of a temperature sensor in the mixed-air stream to maintain the setpoint based on the conditions shown in Table 8-20.

Table 8-20. Mixed-Air Damper Modula	able 8-20.	Mixed-Air	Damper	Modulation	١.
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Condition No.	<u>Description</u>	<u>Control</u>
1	OA temperature < SA temperature < Changeover temperature	Modulate OA, RA, and relief dampers to maintain mixed air temperature at cold deck supply temperature setpoint minus 2 degrees F.
2	SA temperature < OA temperature < Changeover temperature	Set OA and relief dampers at 100% open; RA dampers closed.
3	SA temperature < Changeover temperature < OA temperature	Set OA and relief dampers at their minimum positions, and set RA damper at its corresponding open position.

- (7) Pressure-Independent VAV Terminal Box Control. The control damper in the VAV box will modulate in response to the signal from a flow-sensing element (at the inlet or discharge of the VAV terminal box) to the UMCS Unitary Controller. The UMCS will control the VAV box damper from its minimum-flow position to its full-flow position from the signal of a space temperature sensing element and transmitter. When the space temperature decreases, the damper will gradually close. If the space temperature continues to drop after the damper has reached its minimum-flow position, the reheat coil valve will be controlled to maintain the space temperature setpoint.
- (8) Smoke Control. Smoke detectors in the supply-air and return-air ductwork will stop the supply fan and initiate a smoke alarm if smoke is detected at either location. Restarting the supply fan will require manual reset at the smoke detectors.
- m. VAV Air Handling System with Return Fan and Hot Water/Chilled Water Coils Sequence of Operation (Figure 8-13 and Table 8-13).
 - (1) Outside-Air, Return-Air, and Relief-Air Dampers.
- (a) Occupied Mode. The minimum outside-air damper will open. The maximum outside-air, return-air, and relief-air dampers will be modulated under mixed-air temperature and economizer control.
 - (b) Unoccupied Mode. The dampers will return to their normal positions as shown.

- (2) Supply-Fan and Return-Fan Control.
- (a) Occupied Mode. Supply fan and return fans will start in sequence and will operate continuously.
- (b) Unoccupied Mode. Supply and return fans will cycle on and off according to the night setback schedule setpoint.
- (3) Supply-Duct Pressure Control. When the supply fan starts, the UMCS will modulate the fan inlet vanes from the signal of a static pressure sensor to maintain the setpoint. When the fan is off the inlet vanes will be closed.
- (4) Return Fan Volume Control. When the return fan starts, the UMCS will modulate the fan inlet vanes from the signals of airflow measurement stations and transmitters in the return and supply ducts in order to maintain a constant flow differential setpoint between supply and return airflows.
- (5) Freeze Protection All Modes. A low temperature device, located as shown, will stop the supply and return fans, cause the outside-air, return-air, and relief-air dampers to return to their normal position, and will initiate a low-temperature alarm if the temperature drops below the low temperature device's setpoint. Return to the normal mode of operation will require manual reset at the low temperature device. The UMCS will indicate an alarm condition when the low temperature device trips.
 - (6) Cooling Coil and Preheat Coil Control.
- (a) Occupied Mode. The control valves will be modulated in sequence by the UMCS from the signal of a temperature-sensor located in the supply fan discharge air duct to maintain the setpoint.
- (b) Unoccupied Mode. The UMCS will close the cooling-coil control valve to the coil and will open the preheat-coil control valve to the coil.
- (7) Mixed-Air Temperature Control. When the UMCS places the system in the economizer operation, it will modulate the dampers from the signal of a temperature sensor in the mixed-air stream to maintain the setpoint based on the conditions shown in Table 8-21.

Table 8-21. Mixed-Air Damper Modulation.

Condition No.	<u>Description</u>	<u>Control</u>
1	OA temperature < SA temperature < Changeover temperature	Modulate OA, RA, and relief dampers to maintain mixed air temperature at cold deck supply temperature setpoint minus 2 degrees F.
2	SA temperature < OA temperature < Changeover temperature	Set OA and relief dampers at 100% open; RA dampers closed.
3	SA temperature < Changeover temperature < OA temperature	Set OA and relief dampers at their minimum positions, and set RA damper at its corresponding open position.

(8) Pressure-Independent VAV Terminal Box Control. The control damper in the VAV box will modulate in response to the signal from a flow-sensing element at the inlet (or discharge) of the VAV terminal box to the UMCS Unitary Controller. The UMCS will control the VAV box damper from its

minimum-flow position to its full-flow position from the signal of a space temperature sensing element and transmitter. When the space temperature decreases, the damper will gradually close. If the space temperature continues to drop after the damper has reached its minimum-flow position, the reheat coil valve will be controlled to maintain the space temperature setpoint.

- (9) Smoke Control. Smoke detectors in the supply-air and return-air ductwork will stop the supply fan and the return fan and initiate a smoke alarm if smoke is detected at either location. Restarting the supply fan and the return fan will require manual reset at the smoke detectors.
- n. Single Zone Air Handling System with Hot Water/Chilled Water Coils and Humidification Sequence of Operation (Figure 8-14 and Table 8-14).
 - (1) Outside-Air, Return-Air, and Relief-Air Dampers.
- (a) Occupied Mode. The minimum outside air will open. The maximum outside-air, returnair, and relief-air dampers will be modulated under mixed-air temperature and economizer control.
 - (b) Unoccupied Mode. The dampers will return to their normal positions as shown.
 - (2) Supply-Fan Control.
 - (a) Occupied Mode. The supply fan will start and will operate continuously.
- (b) Unoccupied Mode. The supply fan will cycle on and off according to the night setback schedule setpoint.
- (c) Freeze Protection All Modes. A low temperature device, located as shown, will stop the supply and return fans, cause the outside-air, return-air, and relief-air dampers to return to their normal position, and will initiate a low-temperature alarm if the temperature drops below the low temperature device's setpoint as shown. Return to the normal mode of operation will require manual reset at the low temperature device. The UMCS panel will indicate an alarm condition when the low temperature device trips.
 - (3) Cooling Coil and Heating Coil Control.
- (a) Occupied Mode. The control valves will be modulated in sequence by the UMCS from the signal of the space temperature sensor to maintain its setpoint. On a rise in space temperature, the UMCS will gradually close the heating-coil valve and after passing through a deadband, the UMCS will gradually operate the outside-air damper to admit outside-air beyond the minimum quantity. After the outside air damper is fully open the UMCS will then operate the cooling-coil valve to maintain the setpoint as shown.
- (b) Unoccupied Mode The UMCS will close the cooling-coil control valve to the coil and will open the heating-coil control valve to the coil.
- (4) Mixed-Air Temperature Control. When the UMCS places the system in the economizer operation, it will modulate the dampers from the signal of the space temperature sensor to maintain the setpoint based on the conditions shown in Table 8-22.

Table 8-22. Mixed-Air Damper Modulation.

Condition No.

Description

OA temperature

Changeover temperature

Modulate OA and relief dampers open, and the RA dampers closed to maintain the space temperature

> 2 Changeover temperature < OA temperature

cooling setpoint.

Set OA and relief dampers at their minimum positions, and set RA damper at its corresponding open position.

- (5) Smoke Control. Smoke detectors in the supply-air and return-air ductwork will stop the supply fan and initiate a smoke alarm if smoke is detected at either location. Restarting the supply fan will require manual reset at the smoke detectors.
 - (6) Humidity Control.
- (a) Occupied Mode. The UMCS will gradually operate the humidifier valve from the signal of the return duct relative-humidity sensor /transmitter to maintain relative-humidity space low limit setpoint. If the return duct relative humidity rises above its space high limit setpoint the UMCS will temporarily transfer control of the cooling coil control valve from temperature control to relative humidity control. When the return duct relative humidity drops to its setpoint, control of the cooling coil control valve will be transferred to the temperature control loop. The UMCS will monitor a duct high limit relative-humidity sensor in the supply duct downstream of the humidifier and will modulate the humidifier valve to a fully closed position when the duct high limit setpoint is exceeded.
 - (b) Unoccupied Mode. The humidifier valve will be closed.
- (7) Smoke Control. Smoke detectors in the supply-air and return-air ductwork will stop the supply fan and initiate a smoke alarm if smoke is detected at either location. Restarting the supply fan will require manual reset at the smoke detector.
- o. Single Zone Air Handling System with Hot Water and DX Refrigeration Coils Sequence of Operation (Figure 8-15 and Table 8-15).
 - (1) Outside-Air, Return-Air, and Relief-Air Dampers.
- (a) Occupied Mode. The minimum outside-air damper will open. The maximum outside-air, return-air, and relief-air dampers will be modified under mixed-air temperature and economizer control.
 - (b) Unoccupied Mode. The dampers will return to their normal positions as shown.
 - (2) Supply-Fan Control.
 - (a) Occupied Mode. The supply fan will start and will operate continuously.
- (b) Unoccupied Mode. The supply fan will cycle on and off according to the night setback schedule setpoint.
- (3) Freeze Protection All Modes. A low temperature device, located as shown, will stop the supply and return fans, cause the outside-air, return-air, and relief-air dampers to return to their normal position, and will initiate a low-temperature alarm if the temperature drops below the low temperature device's setpoint as shown. Return to the normal mode of operation will require manual reset at the low temperature device. The UMCS will indicate an alarm condition when the low temperature device trips.
 - (4) Direct Expansion Cooling Coil and Heating Coil Control.
- (a) Occupied Modes. On a rise in space temperature, the UMCS will first gradually close the heating-coil valve. After passing through a deadband. The UMCS will then gradually operate the

outside-air damper to admit outside-air beyond the minimum quantity and after the outside air damper is fully open the UMCS will then operate the DX stages of cooling in sequence.

- (b) Unoccupied Mode. Cooling will be off and the heating-coil control valve will open to the coil.
- (5) Mixed-Air Temperature Control. When the UMCS places the system in the economizer operation, it will modulate the dampers from the signal of the space temperature sensor to maintain the setpoint based on the conditions shown in Table 8-23.

Table 8-23. Mixed-Air Damper Modulation.

Condition No.	<u>Description</u>	<u>Control</u>
1	OA temperature < Changeover temperature	Modulate OA and relief dampers open, and the RA dampers closed to maintain the space temperature cooling setpoint.
2	Changeover temperature < OA temperature	Set OA and relief dampers at their minimum positions, and set RA damper at its corresponding open position.

- (6) Smoke Control. Smoke detectors in the supply-air and return-air ductwork will stop the supply fan and initiate a smoke alarm if smoke is detected at either location. Restarting the supply fan will require manual reset at the smoke detectors.
 - p. Heating and Ventilating System Sequence of Operation (Figure 8-16 and Table 8-16).
 - (1) Outside-Air, Return-Air, and Relief-Air Dampers.
- (a) Occupied Mode. The outside air will open to its minimum position at start-up. The outside-air, return-air, and relief-air dampers will be modulated under mixed-air temperature control.
 - (b) Unoccupied Mode. The dampers will return to their normal positions as shown.
- (2) Ventilation Delay Mode of Operation. During the ventilation delay mode, the dampers remain positioned in the unoccupied mode while the supply fan runs continuously. Until the ventilation delay mode ends, the HVAC system circulates return air to bring the building to comfort conditions, using a minimum of energy.
 - (3) Supply-Fan Control.
 - (a) Occupied Mode. The supply fan will start and will operate continuously.
- (b) Unoccupied Mode. The supply fan will cycle on and off according to the night setback schedule setpoint.
- (4) Freeze Protection All Modes. A low temperature device, located as shown, will stop the supply fan, cause the outside-air, return-air, and relief-air dampers to return to their normal position, and will initiate a low-temperature alarm if the temperature drops below the low temperature device's setpoint as shown. Return to the normal mode of operation will require manual reset at the low temperature device. The UMCS panel will indicate an alarm condition when the low temperature device trips.
 - (5) Heating Coil Control.

(a) Occupied Mode. The control valve will be modulated by the UMCS from the signal of the space temperature sensor to maintain its setpoint. On a rise in space temperature, the UMCS will gradually close the heating coil valve and after passing through a deadband, the UMCS will gradually operate the outside-air damper to admit outside-air beyond the minimum quantity.

- (b) Unoccupied Mode. The UMCS will open the heating coil control valve to the coil.
- (6) Mixed-Air Temperature Control. The UMCS will modulate the outside air, return air, and relief air dampers from the signal of the space temperature sensor to maintain the space temperature at a control setpoint 4 degrees F higher than the heating setpoint. When the space temperature continues to rise, the outside air and relief air damper shall modulate to 100% open, and the return air damper shall modulate closed, and stay at this position until the space temperature drops below the control setpoint. When the space temperature drops below the control setpoint, the outside air and relief air dampers will modulate to their minimum position and the return air damper will go to its corresponding position.
- (7) Smoke Control. Smoke detectors in the supply-air ductwork will stop the supply fan and initiate a smoke alarm if smoke is detected. Restarting the supply fan will require manual reset at the smoke detector.



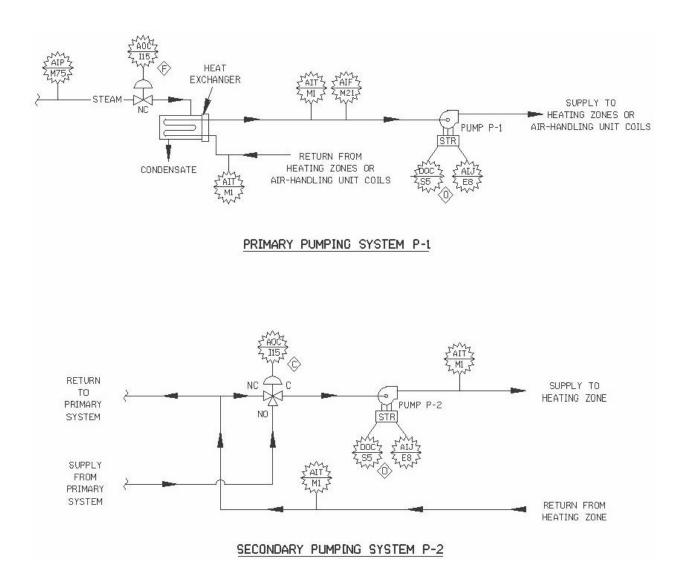
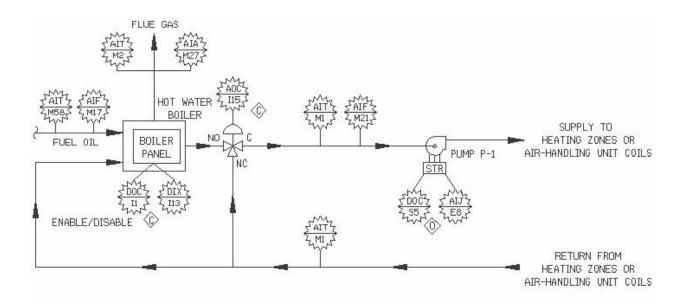


Figure 8-1. Steam/HW Converter and Primary/Secondary Heating System.





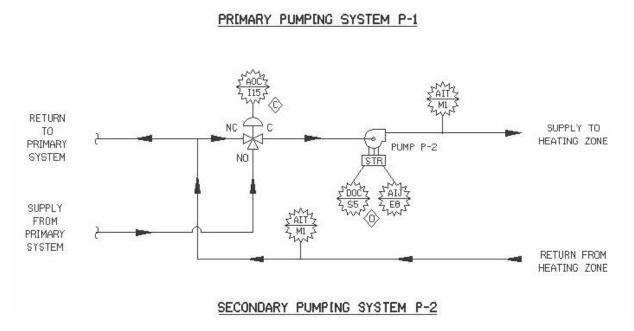


Figure 8-2. Hot Water Boiler and Primary/Secondary Heating System.



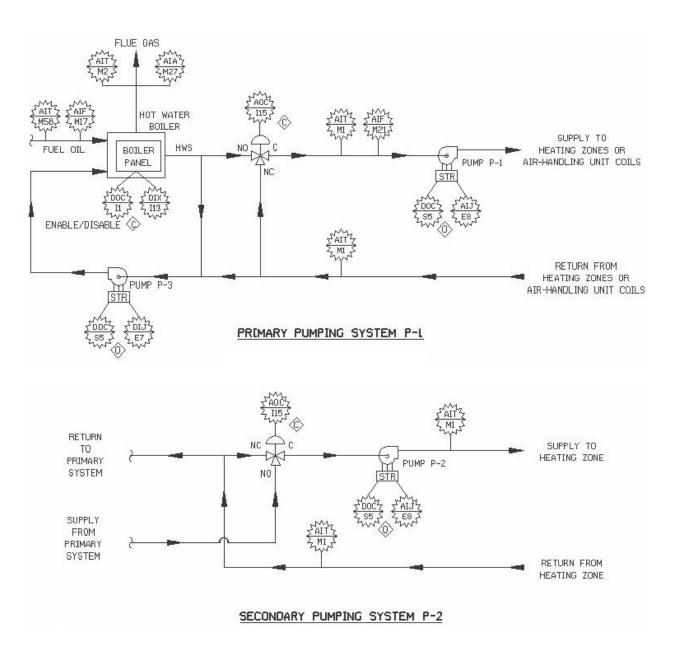
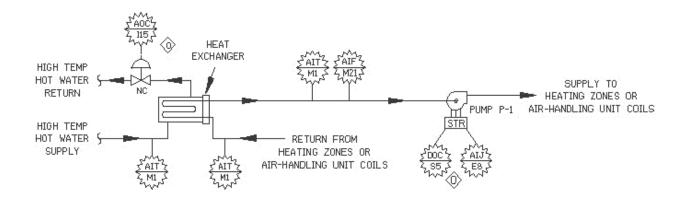


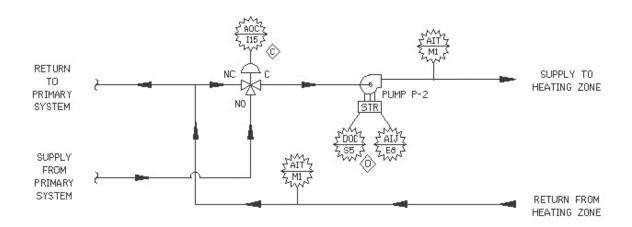
Figure 8-3. Hot Water Boiler with Constant Volume Circulating Loop and Primary/Secondary Heating System.

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PRIMARY PUMPING SYSTEM P-L



SECONDARY PUMPING SYSTEM P-2

Figure 8-4. High Temperature HW/HW Converter And Primary/Secondary Heating System.



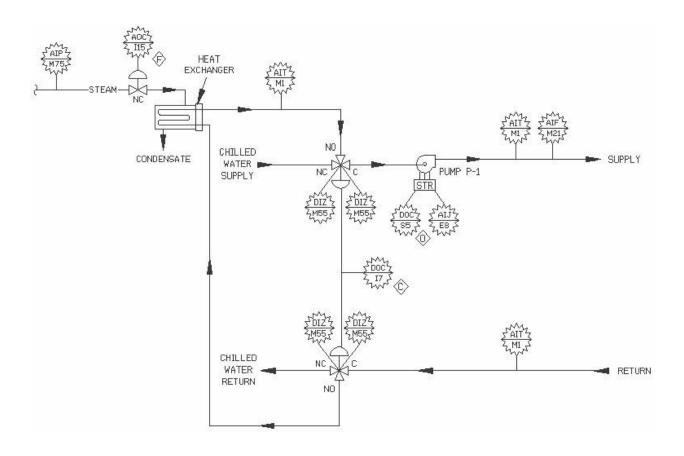


Figure 8-5. Steam/HW Converter with Dual Temperature Distribution System.



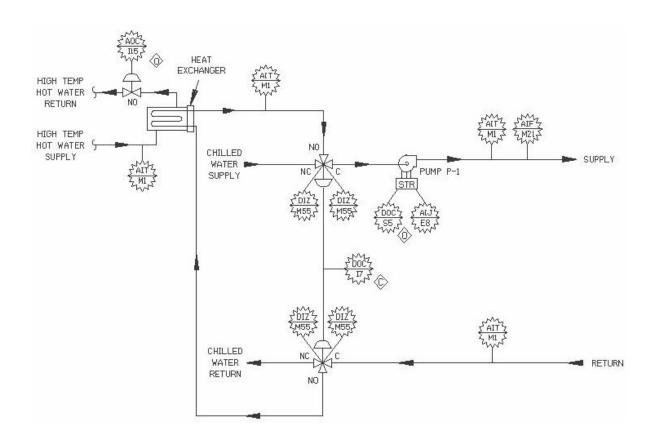


Figure 8-6. High Temperature HW/HW Converter with Dual Temperature Distribution System.



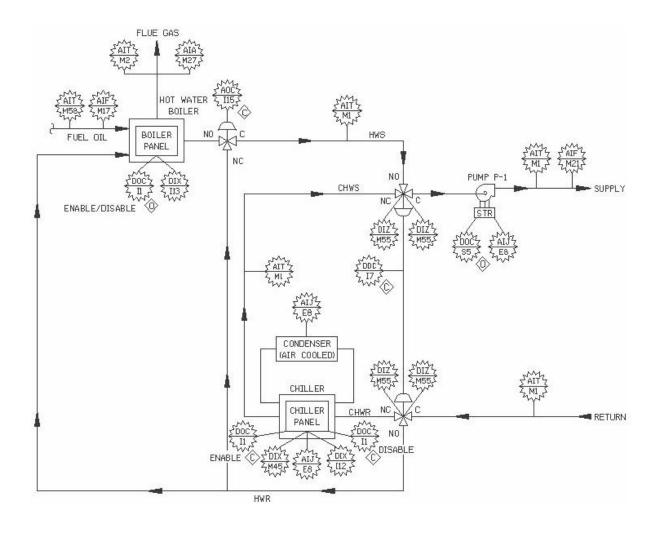


Figure 8-7. Dual Temperature System with Hot Water Boiler and Air-Coiled Chiller.



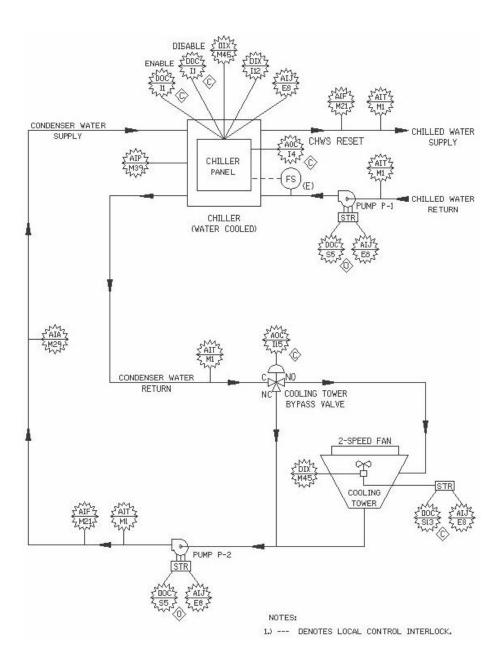


Figure 8-8. Water-Cooled Chiller.



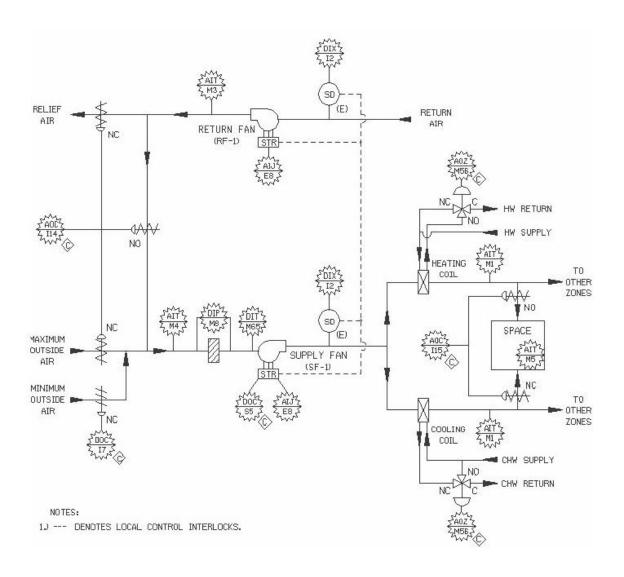


Figure 8-9. Multi-Zone Air Handling System with Hot Water and Chilled Water Coils.



OUTSIDE AIR TEMPERATURE

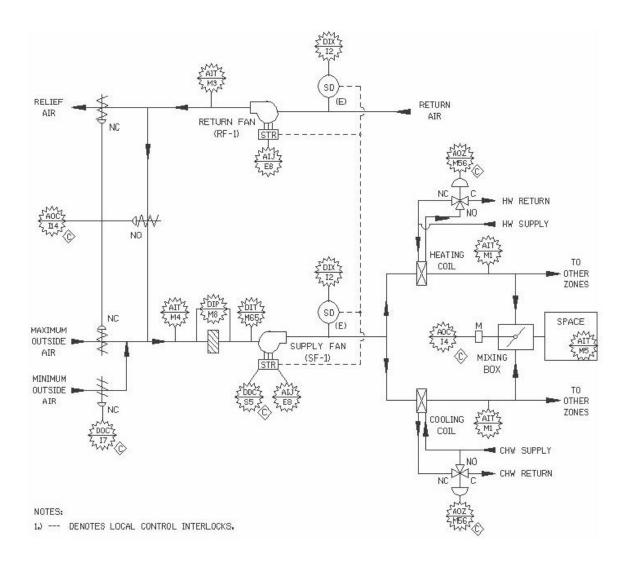


Figure 8-10. Dual Duct Air Handling System with Hot Water and Chilled Water Coils.



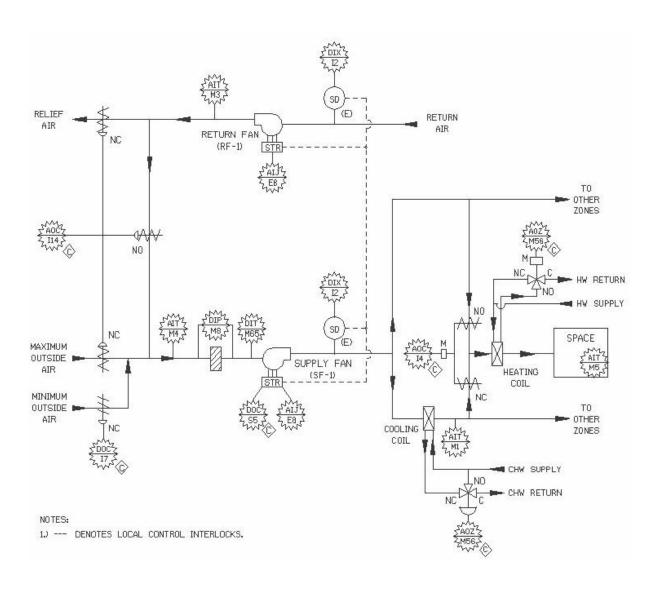


Figure 8-11. Bypass Multi-Zone Air Handling System with Hot Water and Chilled Water Coils.



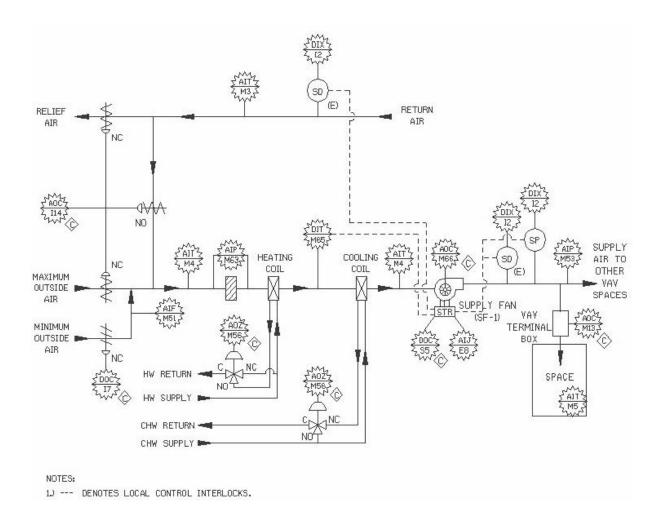


Figure 8-12. VAV Air Handling System with Hot Water and Chilled Water Coils.



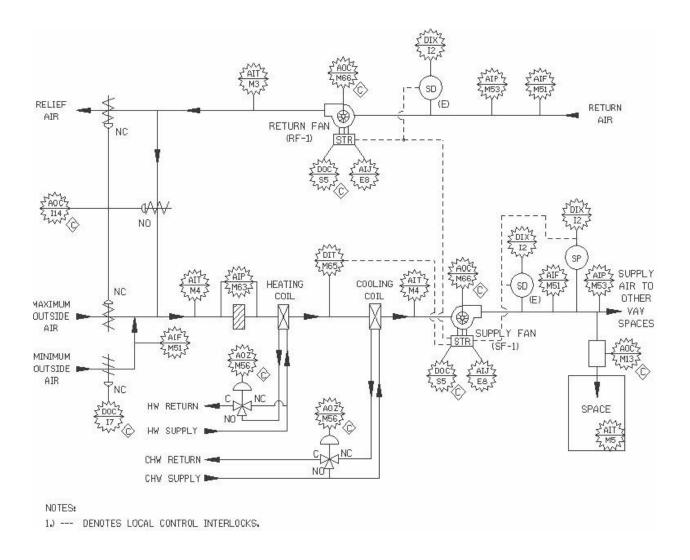


Figure 8-13. VAV Air Handling System with Return Fan and Hot Water/Chilled Water Coils.



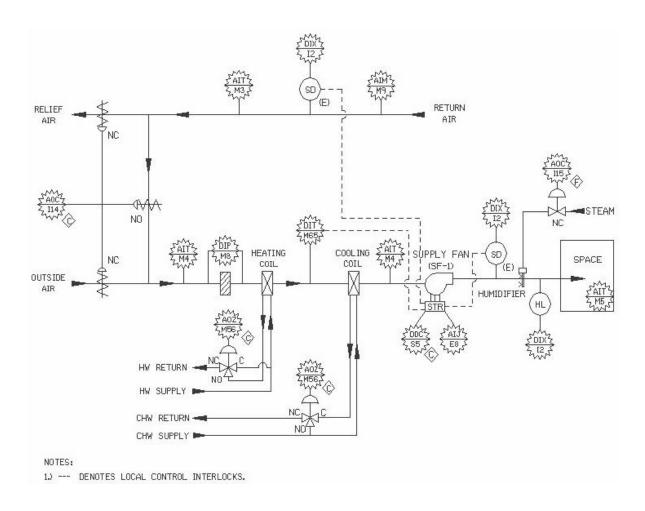


Figure 8-14. Single Zone Air Handling System with Hot Water/Chilled Water Coils and Humidification.



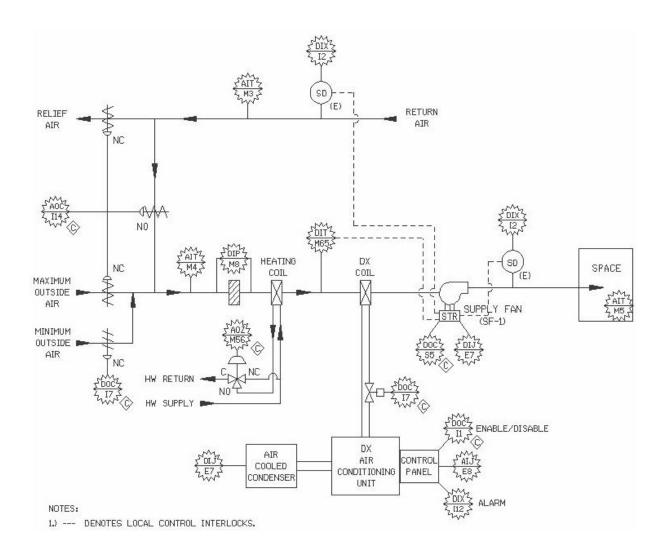


Figure 8-15. Single Zone Air Handling System with Hot Water and DX Refrigeration Coils.



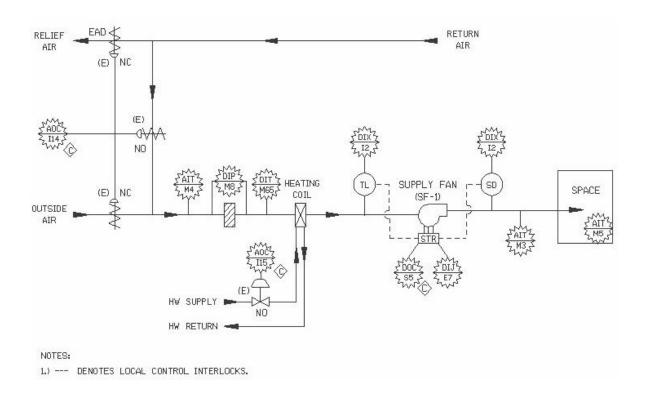


Figure 8-16. Heating and Ventilating System.

Table 8-1. Database Table for Steam/HW Converter and Primary/Secondary Heating System.

			•						
PARAMETERS		00	COOLING				HFATIMG		SELECTED APPLICATION PROGRAMS
	DEFAULT	DEFAULT	ALARM	DEHAND	DEFAULT	DEFAULT UNOCCUPIED	ALARH	DEMAND	SCHEDULED STARTISTOP OPTIMUM STARTISTOP
	SELFUIN	>EILOIUI	36111183	SELFOIN	35170111	SEIFOIN!	3E1111435	SELFOIRE	FENTILATION/RECIRCULATION
PRIMARY HW SUPPLY TEMP	SEE RESET SOH.		SP+4-5DEG.F		SEERESET SCH.		SP+4-5DEG.F		HOT DECK/COLD DECK TEMPERATURE RESET
									REHEAT COIL RESET
PRIMARY SYSTEM FLOW			XX GPM (LOW)				XX GPM (LOW)		BOILER MONITORING & CONTROL CHILLER SELECTION
SECONDARY HW SUPPLY TEMP.			160 DEG.F				160 DEG. F		CHILLED WATER TEMPERATURE RESET
									COMDENSER WATER TEMPERATURE RESET
SECONDARYHWRETURNTEMP			140 DEG.F				140 DEG. F		
STEAMPRESSURE			RRPSI				XXPSI		
									REFER TO SEQUENCE OF OPERATIONS FOR
									ADDITIONAL SOFTWARE, SETTINGS AND
									OPERATIONAL REQUIREMENTS
									CHAMER CIEB 4
									SUMMER STEP 2
									SUMMER STEP 3
									WINTER STEP 1
									WINTER STEP 2
									ADDITIONAL SETTINGS
									PRIMART SUPPLY TEMP RESET
			OCCUPANCT SCHEDULE	CHEDULE		S-			Z20 T
DAT OF WEEK!									
SUNDAY	SITE SPECIFIC	PECIFIC	SITE SPECIFIC	CIFIC	SITE SPECIFIC	OPTED PERIOD 3	OCCUPIED PERIOD	EKIOD 4	
MONDAY	SITESPECIFIC	PECIFIC	SITESPECIFIC	CIFIC	SITESF	SITE SPECIFIC	SITESPECIFIC	IFIC	500
TUESDAY	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC	SITESF	SITESPECIFIC	SITESPECIFIC	IFIC	
WEDNESDAY	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC	SITESF	SITESPECIFIC	SITESPECIFIC	FIC	SECONDARY
THURSDAY	SITES	SITESPECIFIC	SITE SPECIFIC	CIFIC	SITESF	SITE SPECIFIC	SITE SPECIFIC	IFIC	30 Ama
FRIDAY	SITE	SITE SPECIFIC	SITE SPECIFIC	CIFIC	45311S	SITESPECIFIC	SITESPECIFIC	IFIC	
HOLDAY	SILV	SITESPECIFIC	SITESTERING	CIFIC	15 11 5 15 11 5	SILESPECIFIC	SITE SPECIFIC	2 12	431
									.41
The second secon			EQUIPMENT SCHEDULE	HEDULE					+ 100 +
EQUIPMENT NAME	CAP	CAPACITT	MOTOR HP	MAHUFA	MANUFACTURER		HODEL/SERIES	100	ns
PUMP P-1	SYSTEM	SYSTEMSPECIFIC	SYSTEMSPECIFIC	SYSTEM	SYSTEMSPECIFIC		SYSTEMSPECIFIC		AH
PUMPP-2	SYSTEM SPECIFIC	SPECIFIC	SYSTEMSPECIFIC	SYSTEM	SYSTEM SPECIFIC		SYSTEMSPECIFIC		- 20 -
									0
									-20 0 60
									CO DECEMBER CONTROL CO.

Table 8-2. Database Table for Hot Water Boiler and Primary/Secondary Heating System.

The properties The	INSTALLATION: SITE HAME	AREA:	BLDG:	LOCATION:		ALARM DELAT ON STARTUP: 30	H STARTUP: 30				
STETUTO COCCUPATION COCCUPATION CONTINUENCE COCCUPATION COCC				25%	TSTEM OPERAT	ING PARAMETER		-			
COLUMN C	PAKANETERS	DEFAULT	DEFAULT	OLING ALARH	DEMAND	DEFAULT		ALARM	DEMAND	SCHEDULED START/STOP	-
		OCCUPIED	UNOCCUPIED	LIMIT	LIMIT	OCCUPIED	UNOCCUPIED	LIMIT	LIMIT	OPTIMUM START/STOP ECONOMIZER	H
	DOMACKING CITIES	100100000		3 0303 77 03		0001303033		3 2303 77 65		HENTILATION/RECIRCULATION	00467
Particular Par		SECTION.		25 47 305 67.		200000000000000000000000000000000000000		20000		REHEAT COIL RESET	
100 100	PRIMARYSYSTEMFLOW			XXGPM(LOW)				XXGPM(LOW)		BOILER MONITORING & CONTROL	
14000667 1400067 14000	SECONDARY HW SLIPPLY TEMP			160 DEG F				160056 F		CHILLER SELECTION	
1400GET 1400										CONDENSER WATER TEMPERATURE RE	
The control of the	SECONDARY HW RETURN TEMP.			140 DEG. F				140 DEG. F			
10 10 10 10 10 10 10 10	FLUE GAS TEMP			XX DEG. F				XXDEG.F			
BIT COLOR BIT											
Mail	FLUE GAS 02			88×02				88×02		SHORT AGE OF COMPLICATION OF GRAPE	
BOTO OF VERCY COCOMPTO PRINCE COCOMPTO PRINCES COCOMPTO PRINCE	FUELFLOW			MASW				(WOT) MASKX		ADDITIONAL SOFTWARE, SETTINGS	ONE ONE
100 100	FUEL TEMP			XXDEG.F				XX DEG. F		DEMAND LIMITING	- 5
Occupied Period Strict Street										SUMMER STEP 1	
OccUPIED PERIOD STREETING STREETING										SUMMER STEP 2	
OCCUPTIOD 1 OCCUPTIOD 2 OCCUPTIOD 1 OCCUPTIOD 1 OCCUPTIOD 1 OCCUPTIOD 2 OCCUPTIOD 1 OCCUPTIOD 1 OCCUPTIOD 2 OCCUPTIOD 1 OCCUPTIOD 1 OCCUPTIOD 2 OCCUPTIOD 1										SUMMER STEP 3	
OCCUPTION TRANSPORT OCCUPTION TRANSPORT										WINTER STEP 2	
COCOMPANOT SCHEDULE COCOMPANOT SCHEDULE							•				
OCCUPIED PERIOD 2 OCCUPIED PERIOD 2 OCCUPIED PERIOD 3 OCCUPIED PERIOD 3 OCCUPIED PERIOD 4										ADDITIONAL SETTINGS	
OCCUPIED PERIOD OCCUPIED PERIOD 2 OCCUPIED PERIOD 4 OCCUPIED PERIOD 4 OCCUPIED PERIOD 4 OCCUPIED PERIOD 4 OCCUPIED PERIOD 5 OCCUPIED PERIOD 4 OCCUPIED PERIOD 5 OCCUPIED PERIOD 6 OCCUPI										HW SUPPLY TEMP RESET SCHE	JULE
OCCUPIED FERIOD 2 OCCUPIED PERIOD 2 OCCUPIED PERIOD 4 STIESPECIFIC STIESP							•				
OCCUPIATO OCCU										250 ⊤	
Occupied Fernor Occupied Pernor Occupied Pernor	DAT OF WEEK!			OCCUPANCT S	CHEDULE						
STIESPECHIO	HOLIDAT	OCCUPIE	D PERIOD 1	OCCUPIED	PERIOD 2	OCCUPIED	PERIOD 3	OCCUPIED	ERIOD 4		
STIESPECING STIETPSPECING ST	SUNDAY	SITES	PECIFIC	SITESPE	CIFIC	SITESP	ECIFIC	SITESPE	OIFIC	, m,	
STIESPECIFIC STIE	MONDAY	SITES	PECIFIC	SITESPE	OIFIC	SITESP	ECIFIC	SITESPE	CIFIC		
STIESPECIFIC STIETHASPECIFIC STIETHASPECIFIC	TUESDAY	SITES	PECIFIC	SITESPE	CIFIC	SITESP	ECIFIC	SITESPE	CIFIC	u ·	SECONDARY
STIESPECHIC	WEDNESDAY	SITES	PECIFIC	SITESPE	CIFIC	SITESP	ECIFIC	SITESPE	CIFIC	931	
STEESPECHT STEESPECHT STEESPECHT STEESPECHT STEESPECHT STEESPECHT STEESPECHT STEESPECHT STEESPECHT STEEDHER STEENBECHT STEEN	THURSDAY	SITES	PECIFIC	3HS 3HS	OIFIC	SITES	ECIFIC	345 3TIS	OFFIC		PUMP OFF
SITE SPECIFIC STATEM	SATIRDAY	VIIIV	PECIFIC		2112	A SILE OF		SILENT	CIFIC	Д	
CAPACITY HOTOR HP HANUFACTURER HODEL/SERIES MANUFACTURER HODEL/SERIES MANUFACTURER HODEL/SERIES MANUFACTURER HODEL/SERIES MANUFACTURER HODEL/SERIES MANUFACTURER MANUFACTURER	HOLIDAY	SILES	PECIFIC	34S 31IS	CIFIC	SITESP	EOIFIC	SITESPE	OIFIC	31.7	
CAPACITY											
CAPACITY HOTOR HP HAMUFACTURER HODELL/SERIES Voter HODELL/SERIES	700			EQUIPMENT S	CHEDULE	70	304				
SYSTEM SPECIFIC SYSTEM SPE	EQUIPMENT NAME	CAP	ACITT	HOTOR HP	HAHUFA	CTURER		HODEL/SERIES		SA	
SYSTEM SPECIFIC OA TEMP (DEG F7)	PUMP P-1	SYSTEM	SPECIFIC	SYSTEMSPECIFIC	SYSTEM	SPECIFIC		SYSTEMSPECIFIC		н	
SYSTEM SPECIFIC SYSTEM SPECIFIC 1 1 20 6 20 60	PUMP P-2	SYSTEM	SPECIFIC	SYSTEMSPECIFIC	SYSTEM	SPECIFIC		SYSTEMSPECIFIC		20+	
20 0 60 00 00 00 00 00 00 00 00 00 00 00	HWBOILER	SYSTEM	SPECIFIC	SYSTEMSPECIFIC	SYSTEM	SPECIFIC		SYSTEMSPECIFIC			
-20 0 60 OA TEMP (DEG F)											
20 0 60 OA TEMP (DEG F.)										0	
0A TEHP (DEG F)										-20 0	. 8
										OB TEMP (DES F)	

Table 8-3. Database Table for Hot Water Boiler with Constant Volume Circulating Loop and Primary/Secondary Heating System.

PARAHETERS FRINARY WAS SPETTEN OW	BIMMIS										
<u> </u>			COOLING			HEA	недтімб		SELECTED	SELECTED APPLICATION PROGRAMS	1
dΨ	OCCUPIED	UNOCCUPIED	LIMIT	LIMIT	DEFAULT OCCUPIED	UNOCCUPIED	LIMIT	LIMIT	OPTIMUM START/STOP	TISTOP STOP	H H
d E									VENTIL ATTOM/RECIRCULATION	IRCULATION	
RIMARY SYSTEM FLOW	SEE RESET SCH.		SP+4-5DEG.F		SEERESET SCH.		SP+4-5DEG.F		HOT DECK/COLD	HOT DECK/COLD DECK TEMPERATURE RESET	ESET
			(MOTUM)				XX GPM(LOW)		BOILER MOMITORING & CONTROL	ET NG & CONTROL	
									CHILLER SELECTION	5	
SECONDARY HW SUPPLY TEMP.			160DEG.F				160 DEG. F		CONDENSER WAT	CHILLED WATER TEMPERATURE RESET	*
SECONDARY HW RETURN TEMP.			140 DEG. F				140 DEG. F				
FLUEGASTEMP			XXDEG.F				XXDEG.F				
FLUEGASO2			88×02				88 × 02				
			300				CHO CHAGO		REFERTOS	REFER TO SEQUENCE OF OPERATIONS FOR	8 9
OFF FLOW			MADAX				xx dPM (LOW)		OPERAT	OPERATIONAL REQUIREMENTS	9
FUEL TEMP		ò	XX DEG. F				XX DEG. F		DEMAND LIMITING		35
									SUMMER STEP 2	1 2	
									SUMMER STEP 3	ж.	
									WINTER STEP 2	A	
									ADI	ADDITIONAL SETTINGS	3
									TAANS AH	HW SUPPLY TEMP RESET SCHEDULE	7
			OCCUPANCT SCHEDULE	CHEDULE					_ ngz		
DAT OF WEEK!	OCCUPIED PERI	PERIOD 1	OCCUPIED PERIOD 2	FRIOD 2	CCCUPIED PERIOD 3	PERIOD 3	OCCUPIED PERIOD 4	ERIOD 4			
SUNDAY	SITESPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC	200		
MONDAY	SITESPECIFIC	ECIFIC	SITESPECIFIC	DIFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	OIFIC			
TUESDAY	SITESPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC	(3 5		SECONDARY
WEDNESDAY THURSDAY	SITESPECIFIC	EOIFIO	SITESPECIFIC	OIFIG	SITESPECIFIC	EOIFIC	SITESPECIFIC	OFFIC			
FRIDAY	SITESPECIFIC	ECIFIC	SITESPECIFIC	CIFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	CIFIC) 4 150 1	_	PUMP OFF
SATURDAY	SITESPECIFIC	ECIFIC	SITESPECIFIC	CIFIC	SITESPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC	ЕН		
HOLIDAY	SITESPECIFIC	ECIFIC	SITESPECIFIC	CIFIC	SITE SPECIFIC	ECIFIC	SITESPECIFIC	CIFIC	1 1 7		
			EQUIPMENT SCHEDULE	HEDULE		3			100	J	**
EQUIPMENT HAME	CAPACITY	CITT	HOTOR HP	HANUF	MANUFACTURER		MODEL/SERIES		ns i		
PUMPP-1	SYSTEMSPECIFIC	PECIFIC	SYSTEM SPECIFIC	SYSTEM	SYSTEMSPECIFIC		SYSTEMSPECIFIC				
PUMP P-2	SYSTEMSPECIFIC	PECIFIC	SYSTEMSPECIFIC	SYSTEM	SYSTEM SPECIFIC		SYSTEMSPECIFIC		- 20 -		
PUMP P-3 HW BOILER	SYSTEM SPECIFIC	PECIFIC	SYSTEMSPECIFIC	SYSTEM	SYSTEMSPECIFIC		SYSTEM SPECIFIC SYSTEM SPECIFIC				
									;		Ī
									- 50	0	8
									•	OA TEMP (DEG F)	

Table 8-4. Database Table for High Temperature HW/HWConverter and Primary/Secondary Heating System.

				TETEM OPERAT	CTCTEM OPERATING PARAMETERS	MG PARAMETERS				
PARAMETERS		000	COOLING	I SIEM OF ERM	HIGH THUM TELED		HEATING		SELECTED APPLICATION PROGRAMS	v
	DEFAULT	DEFAULT	ALARM	DEMAND	DEFAULT	DEFAULT	ALARM	DEMAND	SCHEDULED START/STOP	
	SETPOINT	UNOCCUPIED	LIMIT	LIMIT	OCCUPIED	UNOCCUPIED	LIMIT	SETPOINT	OPTIMUM START/STOP ECONOMIZER	
									*EMTILATIOM/RECIRCULATION	
PRIMARY HW SUPPLY TEMP	SEERESET SCH.		SP ++- 5 DEG.F		SEERESET SCH.		SP++-5DEG.F		HOT DECK/COLD DECK TEMPERATURE RESERVATIONS	13
DIMAPO COCTEMINA			WOODWOOD ON				COLO DE MODON		DOLLAR COLL DESE	-
			(MOT) LIVE W				Ou de la Campa		CHILLER SELECTION	
SECONDARY HW SUPPLY TEMP.	160 DEG. F		SP++-50EG.F		160 DEG. F		SP++-50EG.F		CHILLED WATER TEMPERATURE RESET	
									CONDENSER WATER TEMPERATURE RESET	Ì
SECONDARYHWRETURNTEMP			140 DEG.F				140 DEG. F			
HIGH TEMP. HW SUPPLY			XX DEG. F				XX DEG. F			
									REFER TO SEQUENCE OF OPERATIONS FOR	
									ADDITIONAL SOFTWARE, SETTINGS AND	
									OPERATIONAL REQUIREMENTS	
									SUMMER STEP 1	
	•								SUMMER STEP 2	
									SUMMER STEP 3	
									WINTER STEP 1	
									WINTER STEP 2	
									ADDITIONAL SETTINGS	
			OCCUPANCT SCHEDULE	CHEDULE		8		6		
DAT OF WEEK?									PRIMART SUPPLY TEMP RESET	
HOLIDAT	OCCOPIED PER	D PERIOD 1	OCCUPIED	EKIOD 2	OCCUPIED PERIOD 3	PERIOD 3	OCCUPIED PERIOD	PERIOD 4		
VOUNDAY		SILESPECIFIC	SILESPECIFIC	CIFIC	SILESPECIFIC	FORES	SILESPECIFIC		250 ⊤	
TUESDAY	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	CIFIC		
WEDNESDAY	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	OFFIC		
THURSDAY	SITES	SITESPECIFIC	SITE SPECIFIC	CIFIC	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC	200	
FRIDAY	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	CIFIC	_	
SATURDAY	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC	_	SECONDARY
HOLIDAY	SITES	SITESPECIFIC	SITESPE	CIFIC	SITESPECIFIC	ECIFIC	SITE SPECIFIC	OIFIC	150 +	PUMP OFF
			EQUIPMENT SCHEDULE	HEDULE	£.				/ 	
EQUIPMENT HAME	CAP	CAPACITT	MOTOR HP	MAHUFA	MANUFACTURER		HODEL/SERIES			
PUMPP-1	SYSTEMSPECIFIC	SPECIFIC	SYSTEMSPECIFIC	SYSTEM	SPECIFIC		SYSTEMSPECIFIC		 	
PUMP P-2	SYSTEM SPECIFIC	SPECIFIC	SYSTEM SPECIFIC	SYSTEM	SYSTEMSPECIFIC		SYSTEM SPECIFIC		B ns AH	
									20 0 60	T ®
									OA TEMP (DEG F)	
									100	

Table 8-5. Database Table for Steam/HW Converter with Dual Temperature Distribution System.

			•	SISIED OF ENHING PHONOLERS	ING PHONDELEN	•			
PARAMETERS		000	3			1	LING		SELECTED APPLICATION PROGRAMS
	DEFAULT	DEFAULT	ALARH	DEMAND	DEFAULT	DEFAULT	ALARH	DEMAND	SCHEDULED START/STOP OPTIMUM START/STOP
	SETPOINT	SETPOINT	SETTINGS	SETPOINT	SETPOINT	SETPOINT	SETTINGS	SETPOINT	ECONOMIZER
THE STREET	100 100 000		0 0000		000000000000000000000000000000000000000		0041-0060		HENTILATION/RECIRCULATION
	255 11251 200.		19306 1. 10		2000		25000		REHEAT COIL RESET
SUPPLYTEMP			XXDEG.F				XXDEG.F		BOILER MONITORING & CONTROL
									CHILLER SELECTION
RETURNTEMP			XXDEG.F				XXDEG.F		CHILLED WATER TEMPERATURE RESET
SYSTEMFLOW			XX GPM (LOW)				XXGPM(LOW)		CONDENSER WATER IEDITERATORE RESE
STEAMPRESSURE			48 DEG. F				XXPSI		
									REFER TO SEQUENCE OF OPERATIONS FOR
									ADDITIONAL SOFTWARE, SETTINGS AND
									DEMAND LIMITING
									SUMMER STEP 1
									SUMMER STEP 2
	0								SUMMER STEP 3
									WINTER STEP 1
									VINTER STEP 2
									ADDITIONAL SETTINGS
									PRIMART SUPPLY TEMP RESET SCHEDULE
			OCCIIDANCE SCHEDIII E	CHEDINE					250 +
DAY OF MERK			ОССОГИПСІЗ	CHEDOLE					
HOLIDAT	OCCUPIED	OCCUPIED PEROID 1	OCCUPIED PERIOD 2	PERIOD 2	OCCUPIED PERIOD 3	PERIOD 3	OCCUPIED PERIOD 4	ERIOD 4	
SUNDAY	SITESPECIFIC	ECIFIC	SITESPECIFIC	CIFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	CIFIC	
MONDAY	SITE SPECIFIC	PECIFIC	SITE SPECIFIC	CIFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	OIFIO	580
	SITESF	SITESPECIFIC	SITESPECIFIC	CIFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	OIFIC	
WEDNESDAY	SITESF	SITE SPECIFIC	SITESPECIFIC	CIFIC	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC	
THURSDAY	SITES	SITESPECIFIC	SITESPECIFIC	OIFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	OIFIC	
FRIDAY	SITES	SITE SPECIFIC	SITE SPECIFIC	OIFIC	SITESPECIFIC	EOFFIC	SITESPECIFIC	OIFIO	+ nc -
SATURDAY	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC	SITE SPECIFIC	ECIFIC	SITESPECIFIC	CIFIC	н3
TRUTOR		SCIPIC CONTRACTOR	7115 PF	2143	SHESPEORIC	20402	SILESPE	245	111
			EQUIPMENT SCHEDULE	SHEDULE					100 +
EQUIPHENT HAME	CAPACITT	Leitt	MOTOR HP	HANUFA	MANUFACTURER		MODEL/SERIES		
PUMP P-1	SYSTEMSPECIFIC	SPECIFIC	SYSTEMSPECIFIC	SYSTEMSPEOIFIO	SPECIFIC		SYSTEM SPECIFIC		<u>.</u> В
									09 0 07-
									OG TEMP (DE

Table 8-6. Database Table for High Temp HW/HW Converter with Dual Temperature Distribution System.

					SISIEM OF ERHING FHRHMEIERS					
PARAMETERS			COOLING			HEATING	IMG		SELECTED APPLICATION PROGRAMS	ì
	DEFAULT	UNOCCUPIED	ALARM	DEMAND	DEFAULT	UNOCCUPIED	ALARM	DEMAND	SCHEDULED STARTISTOP OPTIMUM STARTISTOP	н н
	SETPOINT	SETPOINT	SETTINGS	SETPOINT	SETPOINT	SETPOINT	SETTINGS	SETPOINT	ECONOMIZER	-
HWSUPPLYTEMP	SEERESETSCH		SP+4-50EG.F		SEERESETSCH		SP+4-50EG.F		HOT DECKACOLD DECK TEMPERATURE RESET	
									REHEAT COIL RESET	
SUPPLYTEMP			XXDEG.F				XXDEG.F		BOILER HOMITORING & COMTROL	
									CHILLER SELECTION	
RETURN TEMP			XXDEG.F				XXDEG.F		CHILLED WATER TEMPERATURE RESET	
SYSTEMFLOW			XXGPM(LOW)				XXGPM(LOW)		CONDENSER WATER TEMPERATURE RESEL	
										-
HIGH TEMP HW SUPPLY			XX DEG. F				XX DEG. F			
									REFER TO SEQUENCE OF OPERATIONS FOR	
									OPERATIONAL SOFTWARE, SETTINGS AND	
									DEMAND LIMITING	10
									SUMMER STEP 1	
									SUMMER STEP 2	
									SUMMER STEP 3	
									WINTER STEP 1	-
									WINTER STEP 2	-
									ADDITIONAL SETTINGS	
									PRIMARY SUPPLY TEMP RESET	
	3		OCCUPANCT SCHEDULE	CHEDULE					☐ 250 T	
DAT OF WEEK!	OCCIIPIED	OCCUPIED PERIOD 1	OCCUPIED PERION 2	FRION 2	OCCUPIED PERIOD 3	PERIOD 3	OCCUPIED PERIOD	FRIOD 4		
SHINDSY	SILES	SITE SPECIFIC	SITE SPECIFIC	CIFIC	CITE SPECIFIC	FCIFIC	SITE SPECIFIC			
MONDAY	SITESF	SITESPECIFIC	SITE SPECIFIC	CIFIC	SITESP	SITE SPECIFIC	SITE SPECIFIC	CIFIC	500	
TUESDAY	SITESF	PECIFIC	SITESPECIFIC	CIFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	CIFIC		
WEDNESDAY	SITESF	SITESPECIFIC	SITESPECIFIC	OIFIC	SITE SPECIFIC	ECIFIC	SITESPECIFIC	CIFIC	19	
THURSDAY	SITESF	PECIFIC	SITESPECIFIC	CIFIC	SITE SPECIFIC	ECIFIC	SITESPECIFIC	CIFIC		
FRIDAY	SITESF	PECIFIC	SITESPECIFIC	CIFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	CIFIC	+ 04 +	
SATURDAY	SITESF	PECIFIC	SITE SPECIFIC	CIFIC	SITESPECIFIC	ECIFIC	SITESPE	CIFIC	IH.	
HOLIDAY	SITESF	SITESPECIFIC	SITESPECIFIC	CIFIC	SITE SPECIFIC	ECIFIC	SITESPECIFIC	CIFIC	31.1	
			EQUIPMENT SCHEDULE	HEDRIE					ilde	1
EQUIPMENT HAME	CAPA	CAPACITT	HOTOR HP	HANUF	MANUFACTURER		HODELISERIES			
PUMP P-1	SYSTEMSPECIFIC	SPECIFIC	SYSTEMSPECIFIC	SYSTEM	SYSTEMSPECIFIC		SYSTEMSPECIFIC		: AH	
									- 102	
									-	T
									-20 0 60	8
			•		•					

Table 8-7. Database Table for Dual Temperature System with Hot Water Boiler and Air-Cooled Chiller.

The column	
The color of the	SCHED
Page	
The part of the	T
Part of Meter Part of Mete	HOT DECKACOLD DECK TEMPERATURE RESE
Managed Mana	BOILER MONITORING & CONTROL
The continue of the continue	CHILLER SELECTION
The color of the	CHILLED WATER TEMPERATURE RESET
RECORD R	
Triangle	
DETAILS DETA	REFER TO SPOILENCE OF OPERATIONS FOR
DEFECUTION TREE CONTINUES TREE CON	ADDITIONAL SOFTWARE, SETTINGS AND
100 100	OPERATIONAL REQUIREMENTS
Continue	DEMAND LIMITING
COCCUPANCE SCHEDULE	SUMMER STEP 2
OCCUPIED PERIOD OCCUPIED PERIOD OCCUPIED PERIOD	SUMMER STEP 3
TOT VEEK, OCCUPIED PERIOD 2 OCCUPIED PERIOD 3 OCCUPIED PERIOD 4	WINTER STEP 1
OCCUPANCE OCCUPIED PERIOD 2 OCCUPIED PERIOD 3 2500	WINTER STEP 2
Tot veek Cocupied Period	ADDITIONAL SETTINGS
TOT VIETA OCCUPIED PERIOD 2 OCCUPIED PERIOD 3 OCCUPIED PERIOD 4	PRIMART SUPPLY TEMP RESET
TOT VEEK OCCUPIED PERIOD	SCHEDULE
100 100	250 →
Courtied Period Occupied	
SUIDAN STEEPEORIO STEEPEO	RIOD 4
THE SOAT STIESPORTIC STI	
STITESPECIFIC STITESPECIFI	
STITESPORTO	
STITESPECIFIC STITESPECIFI)30
STIESPECIFIC STIESPECIFIC STIESPECIFIC) a
STICSPORTO STICHARDED STI	
CAPACITY	
SYSTEM SECRET HANUTACTURER HANUTACTURER HODEL/SERIES D SYSTEM SECRETO SYSTEM SECRETO SYSTEM SECRETO B SYSTEM SECRETO SYSTEM SECRETO SYSTEM SECRETO B SYSTEM SECRETO SYSTEM SECRETO B<	
8.575TEM-SPECIFIC SYSTEM-SPECIFIC SYSTEM-SPECI	
SYSTEMSPECIFIC SYSTEMSPECIFIC SYSTEMSPECIFIC SYSTEMSPECIFIC STSTEMSPECIFIC STSTEM	AH
	+ + + 0
	OA TEMP (DEG F)

Table 8-8. Database Table for Water-Cooled Chiller.

The part of the	INSTALLATION: SITE NAME	AREA:	BLDG:	LOCATION:		ALARM DELAT ON STARTUP: 15	H STARTUP: 15				
Particular Par				250	ISTEM OPERATI	NG PARAMETER					T
Control Cont	PARAMETERS	DEFAULT	AULT	OLING	DEHAND	DEFAULT		TING	DEHAND	SCHEDULED START/STOP	н
1011010 101101000 101101000 10110		OCCUPIED	UNOCCUPIED	LIMIT	LIMIT	OCCUPIED	UNOCCUPIED	LIMIT	LIMIT	OPTHUM STARTFSTOP	н
1000000000000000000000000000000000000										FEMTIL ATIOM/RECIRCULATION	
Control	CHWSTEMPERATURE	42 DEG. F		SP (++-) 0.5 DEG.F	XXDEG.F					HOT DECK/COLD DECK TEMPERATURE RESET	
The control of the	CUITE TEMPORATION			9 9 9 9 9 9 9						POIL DE MONTOPING & CONTROL	
1										CHILLER SELECTION	
1	CWSTEMPERATURE	73 DEG. F		SP (++-)2 DEG.F						CHILLED WATER TEMPERATURE RESET	
				1 91000						CONDENSER WATER TEMPERATURE RESET	
1 1 1 1 1 1 1 1 1 1	3001 H03 L1			one DEG.							
Control Cont	CHWSFLOW			XX5GPM							
The control of the											
OCCUPANCE STATISTICATION STATISTIC	CWSFLOW			XX5GPM						REFER TO SEQUENCE OF OPERATIONS FOR	
DATO PERMINENT										ADDITIONAL SOFTWARE, SETTINGS AND	
OCCUPIED PERIOD OCCUPIED PERIOD SUPHERS	CWSPHLEVEL			6 рН/8 рН						OPERATIONAL REQUIREMENTS	T
COCCUPIED PERIOD 2 STITESPECIFIC STITESP										DEMAND LIMITING	
VINTER										SUMMER STEP 1	
OCCUPIED PERIOD 2 OCCUPIED PERIOD 2 OCCUPIED PERIOD 4										A DESCRIPTION OF THE PROPERTY	
OCCUPIED PERIOD 2 OCCUPIED PERIOD 4										WINTER STEP 1	L
OCCUPANCT SCHEDULE										WINTER STEP 2	
OCCUPANCE SCHEDULE											
OCCUPIED PERIOD OCCUPIED PERIOD										ADDITIONAL SETTINGS	
OCCUPIED PERIOD 1											
OCCUPIED PERIOD 1											
OCCUPIED PERIOD 1 OCCUPIED PERIOD 2 OCCUPIED PERIOD 3		-								: 1	
OCCUPTED PERIOD 1				OCCUPANCT SC	HEDULE				5		
OGCUPIED PERIOD 1 OGCUPIED PERIOD 2	DAT OF WEEK!		***************************************								
STEEPEOFINO	HOLIDAT	OCCUPIE	D PERIOD 1	OCCUPIED P	ERIOD 2	OCCUPIED	PERIOD 3	OCCUPIED	PERIOD 4		
STIESPECING STIESPECING STIESPECING	SUNDAY	SITES	PECIFIC	SITESPEC	MFIC	SITESF	ECIFIC	SITESP	EOIFIC		
STIESPEORIO STIESPEORIO STIESPEORIO	MONDAY	SILES	PECIFIC	SITE SPEC	NFI0	SITES	EOIFIC	SITESP	ECIFIC		
STIESPECIFIC STIETPECIFIC STI	TACATO DE CONTRACTO DE CONTRACT	OIII O	PECIFIC	SILLSFE	AFIC	20110	PORTO	SILENT	FORTO		
STESPECIFIC STESPECIFIC STESPECIFIC	TURNOS	CITE	PEOIEIC	CITCOPT	760	SITES	COLEG	CITECO	COLLO		
STIC SPCORTO STIC SPCORTO	FRIDAY	SILS	PECIFIC)345 3LIS	IFIC	SITES	FOFFIC	SITES	ECIFIC		
EQUIPHENT SCHEDULE FOUNDED	SATURDAY	SITES	PECIFIC	SITE SPEC	YFIC	SITESF	ECIFIC	SITESP	ECIFIC		
CAPAGITT	HOLIDAY	SITES	PECIFIC	SITESPEC	¥FIC	SITESF	EOIFIC	SITESP	EOIFIC		
CAPACITY											
SYSTEMSPECIFIC SYSTEMSPECIFIC	JACH THRIBUILD	CAP	ACITE	MOTOR UP	MEDULE	CTHEE		Saleast laude			
SYSTEMSPECIFIC SYSTEM	8311R0	Marsys	SPECIFIC	SYSTEMSPECIFIC	SYSTEMS	SPECIFIC		SYSTEM SPECIFIC		~	
SYSTEMSPECIFIC SYSTEM	COOLINGTOWER	SYSTEM	SPECIFIC	SYSTEMSPECIFIC	SYSTEM	SPECIFIC		SYSTEMSPECIFIC			
OWPUMP SYSTEMSPECIFIC SYSTEMSPECIFIC	CHWPUMP	SYSTEM	SPECIFIC	SYSTEMSPECIFIC	SYSTEM	SPECIFIC		SYSTEMSPECIFIC			
	CWPUMP	SYSTEM	SPECIFIC	SYSTEMSPECIFIC	SYSTEMS	SPECIFIC		SYSTEMSPECIFIC			

Table 8-9. Database Table for Multi-Zone Air Handling System with Hot Water and Chilled Water Coils.

			550	ISIEN UPENNI	SISIEM OFENHING FANAMETERS	٨				
PARAMETERS			COOLING				HEATING		SELECTED APPLICATION PROGRAMS	
	DEFAULT OCCUPIED SETPOINT	DEFAULT UNOCCUPIED SETPOINT	ALARH LIMIT SETTINGS	DEMAND LIMIT SETPOINT	DEFAULT OCCUPIED SETPOINT	DEFAULT UNOCCUPIED SETPOINT	ALARM LIMIT SETTINGS	DEMAND LIMIT SETPOINT	SCHEDULED START/STOP OPTIMUM START/STOP ECONOMIZER	H H H
MIXED AIR TEMP	PERSEQUENCE		SP (++-) 2 DEG.F		PERSEQUENCE		SP (++-) 2 DEG.F		VENTILATION/RECIRCULATION HOT DECK/COLD DECK TEMPERATURE RESET	H H
									REHEAT COIL RESET	
HOT DECK TEMP	PERRESET SOH.		SP (++-)2 DEG.F		PERRESETSOH.		SP (++-) 2 DEG. F		BOILER MOMITORING & COMTROL CHILLER SELECTION	
COLDDECKTEMP	PERRESETSCH.		SP(++)2DEG.F		PERRESET SCH.		SP (++-)2DEG.F		CHILLED WATER TEMPERATURE RESET	
20NE SPACE TEMP	75 DEG. F	\$2DEG.F	SP (++-) 2 DEG. F	80 DEG. F	4.20EG.F	58 DEG. F	SP (++-)2DEG.F	63 DEG. F		++
FILTER			1.25°WC				1.25*WC			++
LOW TEMP DEVICE			35 DEG. F				35 DEG. F			-
									ADDITIONAL SOFTWARE, SETTINGS AND	8
									DEMAND LIMITING	25
									SUMMER STEP 1	-
									SUMMER STEP 3	
									WHITER STEP 2	н
									ADDITIONAL SETTINGS	-
									HOT DECK TEMP RESET SCHEDULE	
			OCCUPANCT SCHEDULE	CHEDULE					T.,	Î
DAT OF WEEK!		, 40						, 40141	† ° ° 3a)	
SUNDAY	SITESF	SITE SPECIFIC	SITE SPECIFIC	CIFIC	SITESF	SITE SPECIFIC	SITE SPECIFIC	CIFIC	, s	
MONDAY	SITESPECIFIC	PECIFIC	SITESPECIFIC	SIFIC	SITESF	SITESPECIFIC	SITESPECIFIC	CIFIC	21:	
TUESDAY	SITES	SITESPECIFIC	SITESPECIFIC	OIFIC	SITESF	SITESPECIFIC	SITESPECIFIC	CIFIC		
WEDNESDAY	SITES	SITESPECIFIC	SITE SPECIFIC	OIFIG	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC		
FRIDAY	SITES	SITE SPECIFIC	SITESPECIFIC	OIFIC	SITES	SITE SPECIFIC	SITE SPECIFIC	CIFIC	+ !	[
SATURDAY	SITES	SITESPECIFIC	SITE SPECIFIC	CIFIC	SITESF	SITESPECIFIC	SITESPECIFIC	CIFIC	55 65 75	on .
HOLIDAY	SITE SF	SITESPECIFIC	SITESPECIFIC	OFFIC	SITESF	SITE SPECIFIC	SITESPECIFIC	OIFIC	COLDEST TEMP (DEG. F)	
			EQUIPMENT SCHEDULE	HEDULE						
EQUIPMENT NAME	CAP	CAPACITT	HOTOR HP	HAHUE	MANUFACTURER		HODEL/SERIES		COLD DECK TEMP RESET SCHEDULE	
SUPPLYTANSF-1 RETURNFANRF-1	SYSTEM SPECIFIC	SPECIFIC	SYSTEM SPECIFIC	SYSTEM	SYSTEM SPECIFIC		SYSTEM SPECIFIC		D DECK TEMP (056. F)	Ť
									60 70 %	I \$

Table 8-10. Database Table for Dual Duct Air Handling System with Hot Water and Chilled Water Coils.

PARAHETERS DEFAULT DEFAULT	######################################	DEMAND LIMIT SETPOINT	DEMAND DEFAULT	DEFAULT	HEATING ALARH	DEMAND	SELECTED APPLICATION PROGRAMS SCHEDULED START/STOP	
RITEMP PERRESSISCH		DEMAND LIMIT SETPOINT	DEFAULT	DEFAULT	ALARH 	DEHAND	SCHEDULED START/STOP	
KTEMP PERRISET SON	\$P(4+)2066.F \$P(4+)2066.F \$P(4+)2066.F \$P(4+)2066.F \$P(4+)2066.F \$P(4+)2066.F		SETPOINT	UNOCCUPIED	SETTINGS	SETPOINT	OPTIMUM START/STOP ECONOMIZER	
TERRESET SCH. TERRESET SCH	\$F(+1)2066.F \$F(+1)2066.F \$P(+1)2066.F \$125'W0		307311025 020		P 070 00 110 00		TENTILATION/RECIRCULATION	H .
TERRESTISCH PERRESTISCH TERRESTISCH	\$P(++)2066.F \$P(++)2066.F \$P(++)2066.F 125'W6 125'W6		200300000		2003(22)		REHEAT COIL RESET	•
AGE TEMP PERRISEL SCH AGE TEMP TS GG T SI AGE TEMP TS GG T SI AGE TEMP TS GG T AGE TEMP TS GG TEMP AGE TEM	\$P(++)2066.F		PERRESET SCH.		SP (++-)2 DEG.F		BOILER MONITORING & CONTROL	
PDEVIOE TSOGG, F SE	SP(44)3 DEG.F		PERRESET SCH.		SP (++-) 2 DEG.F		CHILLED WATER TEMPERATURE RESET	
PDEVICE	1.25°W0 35066.F	\$0DEG.F	68 DEG. F	58 DEG. F	SP (++-)2 DEG.F	63 DEG. F	CONDENSER WATER TEMPERATURE RESET	
I	35 DEG. F				1.25°WC			
TOT VETEK OCCUPIED FER SUITE SPECIFO HOLIDAY SITE SPECIFO HOLIDAY HOLIDAY HOLIDAY SITE SPECIFO HOLIDAY HOLIDA					35 DEG. F			
CALCADAS JIIS SUCIOLO SILES SUCIOLO SILES SUCIOLO SILES SUCIOLO SILES SUCIOLO SUCIONA				• · · · · • · · · · · · · · · · · · · ·			ADDITIONAL SOFTWARE, SETTINGS AND	į.
CALCADAS SILES OLIO 345 SILES							DEMAND LIMITING	ź
OCCUPIED PERI							SUMMER STEP 1	
OCCUPIES IIIS SECULO STATE SECU							SUMMER STEP 2 SUMMER STEP 3	
OCCUPIED PERI							WHITER STEP 2	M
OCCUPIED PERIOD STREET							ADDITIONAL SETTINGS	
OCCUPIED PERI			**************************************					
OCCUPIED PERI SITE SPECHTO SITE SPECHTO SITE SPECHTO SITE SPECHTO							HOLDECK LEAP KESEL SCHEDOLE	
OCCUPIED PERI SITE SPECHTO SITE SPECHTO SITE SPECHTO SITE SPECHTO SITE SPECHTO	OCCUPANCT SCHEDULE	HEDRIE					6. F)	ř
OCCUPIED PERI SITE SPECIFIC SITE SPECIFIC SITE SPECIFIC							\$ 30)	
	OCCUPIED PERIOD 2	ERIOD 2	OCCUPIED PERIOD 3	PERIOD 3	OCCUPIED PERIOD	ERIOD 4	+08 ан	
	SITE SPECIFIC	IFIC	SITE SPECIFIC	COLFIC	SITE SPECIFIC	SIFIC	31:	
	SITESPECIFIC	HIC	SITESPECIFIC	COLFIC	SITESPECIFIC	SIFIC		
	SITESPECIFIC	IFIC	SITESPECIFIC	COLFIC	SITESPECIFIC	OIFIC	10 1 10 1	
THURSDAY SITE SPECIFIC CONTROL CONTROL	SITE SPECIFIC	IFIC	SITE SPECIFIC	COFFIC	SITE SPECIFIC	SIFIC	- + + 05	Ī
3	SITESPECIFIC	FIC	SITE SPECIFIC	COLFIC	SITE SPECIFIC	SIFIC	55 65 75	\$ \$
	SITESPECIFIC	IFIC	SITE SPECIFIC	COLFIC	SITESPECIFIC	SIFIC	COLDEST TEMP (DEG. F)	
	EQUIPMENT SCHEDULE	HEDULE						
EQUIPMENT NAME CAPACITY	HOTOR HP	MANUFACTURER	CTURER		HODEL/SERIES		COLD DECK TEMP RESET SCHEDULE	
SUPPLYFANSF-1 SYSTEMSPECIFIC STSTEMSPECIFIC	SYSTEM SPECIFIC	SYSTEM SPECIFIC SYSTEM SPECIFIC	PECIFIC		SYSTEM SPECIFIC SYSTEM SPECIFIC		DECK TEMP 0 5 2 2 2 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Ť
							• 	T \$
							HOTTEST SPACE TEMP (DEG. F)	

Table 8-11. Database Table for Bypass Multi-Zone Air Handling System with Hot Water and Chilled Water Coils

DEFAULT DEFAULT OCCUPIED SETPOINT						HEA	HEATING		SELECTED APPLICATION PROGRAMS	RAMS
CONTEMP AGE TEMP P DEVICE		DEFAULT UNOCCUPIED SETPOINT	D LIMIT SETTINGS	DEMAND LIMIT SETPOINT	DEFAULT OCCUPIED SETPOINT	DEFAULT UNOCCUPIED SETPOINT	ALARH LIMIT SETTIMGS	DEHAND LIMIT SETPOINT	SCHEDULED START/STOP OPTIMUM START/STOP ECONOMIZER	
COKTEMP AGE TEMP P DEVICE									*EMTILATION/RECIRCULATION	
AGTTEMP AGG TEMP	SET SCH.		SP (++-)2 DEG.F		PERRESET SCH.		SP (++-)2 DEG.F		HOT DECK/COLD DECK TEMPERATURE RESET REHEAT COIL RESET	RESET
P DEVICE	SET SCH.		SP (++-)20EG.F		PERRESET SCH.	6	SP (++-)2 DEG.F		BOILER MONITORING & CONTROL	
# DEVICE	+	\$2DEG.F	SP (++-) 2 DEG.F	80 DEG.F	68 DEG. F	58 DEG. F	SP (+/-) 2 DEG.F	63 DEG. F	CHILLER SELECTION CHILLED WATER TEMPERATURE RESET	
TEMP DEWOET		•							CONDENSER WATER TEMPERATURE RESET	SET
			1.25°WC 35DEG.F				1.25°WC 35 DEG. F			
									REFER TO SEQUENCE OF OPERATIONS FOR ADDITIONAL SOFTWARE, SETTINGS AND	SFOR
									DEMAND LIMITING	
									SUMMER STEP 1	
									SUMMER STEP 2	
									WHTER STEP 1	
									ADDITIONAL SETTINGS	
\$									COLD DECK TEMP RESET SCHEDULE	DULE
			OCCUPANCT SCHEDULE	HEDULE					- 2	
DAT OF WEEK!	Taja usian bear	1 100183	c upiasa usianooo	FRION 2	E UUIBJA UJIANOOO	PERION 3	F UDI BLE DE BLE DE BLOOD	PERIOD 4		
	SITE SPECIFIC	IFIC	SITE SPECIFIC	SIFIC	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC		
MONDAY	SITESPECIFIC	IFIC	SITESPECIFIC	SIFIC	SITESPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC		
	SITESPECIFIC	IFIC	SITE SPECIFIC	OIFIC	SITESPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC	(4	
WEDNESDAY THIRSDAY	SITESPECIFIC	FIG	SITESPEC	OIFIG	SITESPECIFIC	EOIFIC	SITESPECIFIC	OIFIC	. 93	
	SITESPECIFIC	IFIG	SITESPECIFIC	SIFIC	SITE SPECIFIC	ECIFIC	SITESPECIFIC	CIFIC	(a)	
SATURDAY	SITESPECIFIC	IFIC	SITESPECIFIC	SIFIC	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC	AH	
HOLIDAY	SITESPECIFIC	,ETIC	SITESPECIFIC	OIFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	CIFIC	K 1E	
			EQUIPMENT SCHEDULE	HEDULE					0360	
	CAPACITT	111	HOTOR HP	HAHUFA	MANUFACTURER		HODEL/SERIES		S 1 01	
SUPPLYFANSF1 S	SYSTEM SPECIFIC SYSTEM SPECIFIC		SYSTEM SPECIFIC SYSTEM SPECIFIC	SYSTEM	SYSTEM SPECIFIC		SYSTEM SPECIFIC			
									3	
									- 40	- 06
									HOTTEST SPACE TEMP (DEG. F)	.e. F.

Table 8-12. Database Table for VAV Air Handling System with Hot Water and Chilled Water Coils.

INSTALLATION: SITE NAME	AREA:	BLD6:	LOCATION:		ALARM DELAT ON STARTUP: 15	H STARTUP: 15		91.5		
		No. of the last of	S	TSTEM OPERAT	STSTEM OPERATING PARAMETERS	s				
PARAMETERS		00	COOLING				HEATING		SELECTED APPLICATION PROGRAMS	
	DEFAULT	DEFAULT	ALARH	ОЕНАНО	DEFAULT	DEFAULT	ALARM	DEHAND	SCHEDULED START/STOP	H
	SETPOINT	SETPONT	SETTINGS	SETPOINT	SETPONT	SETPOINT	SETTINGS	SETPONT	CONOMIZER	
									PENTILATION/RECIRCULATION	*
SUPPLYAIRTEMP	55 DEG. F		SP (++-) 2 DEG. F		55 DEG. F		SP (++-) 2 DEG. F		HOT DECK/COLD DECK TEMPERATURE RESET	_
									REHEAT COIL RESET	H
MIXEDAIRTEMP	PER SEQUENCE		SP (++-)2 DEG.F		PERSEQUENCE		SP (++-)2DEG.F		CHILLER SELECTION	
SPACETEMP	75 DEG.F	\$2 DEG.F	SP(++)2DEG.F	\$0 DEG.F	68 DEG. F	58 DEG. F	SP (+4-) 2 DEG.F	43 DEG. F	CHILLED WATER TEMPERATURE RESET	
									COMDENSER WATER TEMPERATURE RESET	
FILTER			1.25°WC				1.25°WC			-
SUPPLYAIR STATIOPRESS.	SYSTEMSPECIFIC		SP (++-) 0.5* W.C.		SYSTEMSPECIFIC	•	SP (++-) 0.5" W.C.			
10% TEMP DEVICE			35066.F				35066.F			-
									REFER TO SEQUENCE OF OPERATIONS FOR	3
									ADDITIONAL SOFTWARE, SETTINGS AND OPERATIONAL REQUIREMENTS	
									DEMAND LIMITING	3
									SUMMERSTEP1	
									SUMMER STEP 2	
									SUMMER STEP 3	-
									WINTER STEP 1	
									VINTER STEP 2	-
									ADDITIONAL SETTINGS	
			OCCUPANCT SCHEDULE	CHEDULE						
DAT OF WEEK!										
HOLIDAT	OCCUPIE	OCCUPIED PERIOD 1	OCCUPIED PERIOD 2	PERIOD 2	OCCUPIED PERIOD 3	PERIOD 3	OCCUPIED PERIOD 4	PERIOD 4		
THOUSE	2110	SPECIFIC	SILESPECIFIC	Oldo	01150	COLOR	SITESPECIFIC	CIFIC		
TUESDAY	SITESPECIFIC	SPECIFIC	SITE SPECIFIC	CIFIC	SITES	SITE SPECIFIC	SITESPECIFIC	CIFIC		
WEDNESDAY	SITE	SPECIFIC	SITESPECIFIC	CIFIC	SITESP	SITESPECIFIC	SITESPECIFIC	CIFIC		
THURSDAY	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC	SITESF	SITE SPECIFIC	SITESPECIFIC	CIFIC		
FRIDAY	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC	SITESF	SITESPECIFIC	SITESPECIFIC	CIFIC		
SATURDAY	SITE	SITESPECIFIC	SITESPECIFIC	CIFIC	SITESF	ECIFIC	SITE SPECIFIC	OIFIC		
HOLIDAY	SITES	SITESPECIFIC	SITESPECIFIC	OIFIO	SITESPECIFIC	EOIFIC	SITESPECIFIC	OIFIC		
			EQUIPMENT SCHEDULE	SHEDULE						
EQUIPMENT NAME	CAP	CAPACITT	HOTOR HP	MANUFA	MANUFACTURER		MODEL/SERIES			
SUPPLY FAN SF-1	SYSTEM SPECIF	4 SPECIFIC	SYSTEMSPEOIFIC	SYSTEM	SYSTEM SPECIFIC		SYSTEM SPECIFIC			
						000				

Table 8-13. Database Table for VAV Air Handling System with Return Fan and Hot Water/Chilled Water Coils

INSTALLATION: SITE NAME	AREA:	BLDG:	LOCATION:	200	ALARM DELAT ON STARTUP: 15	M STARTUP: 15		(525		
			22.2	ISTEM OPERAT	STSTEM OPERATING PARAMETERS					
PARAMETERS		31	HEATING			000	COOLING		SELECTED APPLICATION PROGRAMS	
	OCCUPIED	UNOCCUPIED	ALARM	DEMAND	OCCUPIED	UNOCCUPIED	ALARM	LIMIT	SCHEDULED START/STOP OPTIMUM START/STOP	н н і
									PENTILATION/RECIRCULATION	
SUPPLYAIRTEMP	55 DEG. F		SP(++)2DEG.F		55 DEG. F		SP (++)20EG.F		HOT DECK/COLD DECK TEMPERATURE RESET REHEAT COIL RESET	
MIXED AIR TEMP	PERSEQUENCE		SP (++-) 2 DEG.F		PERSEQUENCE		SP (+/-) 2 DEG.F		BOILER MONITORING & CONTROL	
									CHILLER SELECTION	
SPACETEMP	75 DEG. F	\$2 DEG. F	SP (++-)2 DEG.F	*0 DEG. F	68 DEG. F	58 DEG. F	SP (+/-)2DEG.F	63 DEG.F	CHILLED WATER TEMPERATURE RESET	
FILTER			1.25°WC				1.25°WC			
SUPPLY AIR STATIC PRESS.	SYSTEM SPECIFIC		SP(++-10.5*W.C.		SYSTEM SPECIFIC		SP (++-) 0.5* W.C.			
									REFER TO SEQUENCE OF OPERATIONS FOR	
LOW TEMP DEVICE			35 DEG. F				35DEG.F		ADDITIONAL SOFTWARE, SETTINGS AND OPERATIONAL REQUIREMENTS	
									DEMAND LIMITING	
RETURNFANFLOW	SUPPLYOFM		SP(++)XXCFM		SUPPLYOFM		SP (++) XX OFM		SUMMER STEP 1	M
	C C C C C C C C C C C C C C C C C C C				201010101010101010101010101010101010101				SUMMER STEP 3	
									WINTER STEP 1	H
									ADDITIONAL SETTINGS	87
			OCCUPANCT SCHEDULE	HEDOLE						
DAT OF WEEK!										
HOLIDAT	OCCUPIED PERIOD 1	PERIOD 1	OCCUPIED PERIOD 2	ERIOD 2	OCCUPIED PERIOD 3	PERIOD 3	OCCUPIED PERIOD 4	ERIOD 4		
SUNDAY	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	MFIC	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC		
MONDAY	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	MFIC	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC		
TOESDAY	SITESPECIFIC	POINT	SITESPECIFIC	ATIC METO	SITESPECIFIC	FOFFIC	SITESPECIFIC	OFFIC		
THURSDAY	SITESP	ECIFIC	SITESPEC	MFIC	SITESP	ECIFIC	SITESPECIFIC	CIFIC		
FRIDAY	SITESPECIFIC	ECIFIC	SITESPECIFIC	MFIC	SITESPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC		
SATURDAY	SITESPECIFIC	ECIFIC	SITESPECIFIC	YFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	CIFIC		
HOLIDAY	SITESPECIFIC	ECIFIC	SITESPECIFIC	HIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	CIFIC		
			EQUIPMENT SCHEDULE	HEDULE						
EQUIPMENT HAME	CAPACITY	CITT	HOTOR HP	HAHUFA	MAMUFACTURER	5.78	HODEL/SERIES	200		
SUPPLYFANSF-1	SYSTEMSPECIFIC	SPECIFIC	SYSTEMSPECIFIC	SYSTEM	SYSTEMSPECIFIC		SYSTEMSPECIFIC			
RETURN FANRE-1	SYSTEM SPECIFIC	SPECIFIC	SYSTEM SPECIFIC	SYSTEM	SYSTEMSPECIFIC		SYSTEM SPECIFIC			
										1

Table 8-14. Database Table for Single Zone Air Handling System With Hot Water/Chilled Water Coils and Humidification.

The control of the				LOCHION							
Table Tabl					TSTEM OPERAT	ING PARAMETER		200			
STEPPORT	PARAMETERS	DEFAULT	TIME	DLING ALARM	DEMAND	DEFAULT		STING ALARM	DEHAND	SELECTED APPLICATION PROGRAMS SCHEDULED START/STOP	
125'00 145'00 1		OCCUPIED	UNOCCUPIED	LIMIT	LIMIT	OCCUPIED	UNOCCUPIED	LIMIT	LIMIT	OPTIMUM START/STOP ECOMOMIZER	
128.00 1										*ENTILATION/RECIRCULATION	H
1.155	MIXED AIR TEMP	PERSEQUENCE		SP (++-)2DEG.F		PERSEQUENCE		SP (++-)2 DEGF		HOT DECK/COLD DECK TEMPERATURE RESET	
1.15F VOID 1.15F VO 1.15F VOID 1.15F VOI	SPACE TEMP	750EG.F	\$2 DEG.F	SP (++-) 2 DEG.F	80 DEG.F	68 DEG. F	58 DEG. F	SP (++-)2 DEGF	63 DEG. F	BOILER HOMITORING & CONTROL	+
135.00 145.00 1										CHILLER SELECTION	-
1906.67 1906	FILTER			1.25°WC				1.25*		CONDENSER WATER TEMPERATURE RESET	
OCCUPIED FINOS OCCU	LOW TEMP DEVICE			35DEG.F				35DEG.F			
OCCUPIED PERIOD STATESTICATION STA											
OCCUPANCE SCHEDULE SUPPLIES											
Occupancy Occu										REFER TO SEQUENCE OF OPERATIONS FOR	
OCCUPIENT OCCU										OPERATIONAL REQUIREMENTS	
OCCUPANCE SCIENCING STEELY S										DEMAND LIMITING	8
COCUPTION COCU										SUMMER STEP 1	
COCUPTED PERIOD 2 COCU										SUMMER STEP 2	-
VINTER STATESTORIE VINTER										SUMMER STEP 3	-
OCCUPIED PERIOD 1										WINTER STEP 1	
Occupancy Occu										VINTER STEP 2	
Occupend Fritod										ADDITIONAL SETTINGS	
OCCUPANCT SCHEDULE											
OCCUPIED PERIOD 1 OCCUPIED PERIOD 2 OCCUPIED PERIOD 3 STIESPECPINO STIESP											
OCCUPIED PERIOD 1 OCCUPIED PERIOD 2 OCCUPIED PERIOD 3				OCCUPANCT S	CHEDULE						
OCCUPIED FERIOR OCCUPIED FERIOR	DAT OF WEEK										
STITE SPECIFIC STITE SPECIFIC STITE SPECIFIC STITE SPECIFIC STITE SPECIFIC STITE SPECIFIC STITE SPECIFIC STITE SPECIFIC STITE S	SUNDAY	SITES	PECIFIC	SITESPE	CIFIC	SITESE	PECIFIC	SITESP	FERIOD 4		
STITE SPECIFIC STITE SPECIFIC STITE SPECIFIC STITE SPECIFIC STITE SPE	MONDAY	SITESF	PECIFIC	SITESPE	CIFIC	SITESF	ECIFIC	SITESP	ECIFIC		
STIESPECIFIC STI	TUESDAY	SITESF	PECIFIC	SITESPE	CIFIC	SITESF	ECIFIC	SITESP	ECIFIC		
STICEPCOPIO STICEPCOPIO STICEPCOPIO	WEDNESDAY	SITESF	PECIFIC	SITESPE	OIFIC	SITES	ECIFIC	SITESP	ECIFIC		
STITE SPECIFIC STITE SPECIFIC	THURSDAY	SITESF	PECIFIC	SITESPE	OIFIC	SITESF	ECIFIC	SITESP	ECIFIC		
SITE SPECIFIC STITE SPECIFIC	FRIDAY	SITESF	PECIFIC	SITESPE	CIFIC	SITES	ECIFIC	SITE SP	ECIFIC		
STIESPECIFIC STIESPECIFIC	SATURDAY	SITES	PECIFIC	SITESPE	CIFIC	SITES	ECIFIC	SITESP	ECIFIC		
CAPACITY HOTOR HP MANUFACTURER SYSTEMSPECIFIC SYSTEMSPECIFIC	HOLIDAY	SITES	PECIFIC	SITESPE	CIFIC	SILES	ECIFIC	SITESP	ECIFIC		
SYSTEM SPECIFIC SYSTEM SPECIFIC SYSTEM SPECIFIC STATEM SPECIFI				EQUIPMENTS	HEDDLE						
SYSTEM-SPECIFIC SYSTEM-SPECIFIC	EQUIPMENT NAME	CAP	ACITT	HOTOR HP	HAHUF	ACTURER	2820	HODELISERIES			
	SF-1	SYSTEM	SPECIFIC	SYSTEMSPECIFIC	SYSTEM	SPECIFIC		SYSTEMSPECIFIC			
										: :	

Table 8-15. Database Table for Single Zone Air Handling System with Hot Water and DX Refrigeration Coils.

INSTALLATION: SITE NAME	AREA:	.B018	LOCATION:		ALARM DELAT ON STARTUP: 15	M STARTUP: 15				T
PARAHETERS		600	COOLING	TSTEM OPERAL	STSTEM OPERATING PARAMETERS		HFATIME		SELECTED APPLICATION PROGRAMS	
	DEFAULT	DEFAULT	ALARM	DEMAND	DEFAULT	DEFAULT		DEMAND	SCHEDULED STARTISTOP	*
	SETPOINT	UNOCCUPIED	SETTINGS	SETPOINT	SETPOINT	SETPOINT	SETTINGS	SETPOINT	OPTIMUM START/STOP ECONOMIZER	н н
									TEMTILATION/RECIRCULATION	
MIXED AIR TEMP	PERSEQUENCE		SP (++-)2 DEG.F		PERSEQUENCE		SP (++-)20EGF		HOT DECK/COLD DECK TEMPERATURE RESET REHEAT COIL RESET	
SPACETEMP	75 DEG. F	\$2 DEG. F	SP (++-)2 DEG.F	80 DEG. F	68 DEG. F	58 DEG. F	SP(++-)2DEGF	63 DEG. F	BOILER MONITORING & CONTROL	
									CHILLER SELECTION	
FILTER			1.25°WC				1.25*		CHILLED WATER TEMPERATURE RESET	
LOWTEMP DEVICE			350EG.F				35 DEG. F		COMDENSER WATER TEMPERATURE RESET	
									REFER TO SEQUENCE OF OPERATIONS FOR ADDITIONAL SOFTWARE, SETTINGS AND OPERATIONAL REQUIREMENTS	
						····			DEMAND LIMITING	
									SUMMER STEP 1	H
									SUMMER STEP 3	
									WINTER STEP 1	н
									VINTER STEP 2	
			OCCUPANCT SCHEDULE	SHEDULE						
DAT OF WEEK!										
HOLIDAT	OCCUPIED	OCCUPIED PERIOD 1	OCCUPIED PERIOD 2	ERIOD 2	OCCUPIED PERIOD 3	PERIOD 3	OCCUPIED PERIOD 4	PERIOD 4		
SUNDAY	83118 83118	SITESPECIFIC	SITESPECIFIC	CIFIC	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	OIFIC		
TUESDAY	53115 53115	SITE SPECIFIC	SITESPECIFIC	SIFIC	SITESPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC		
WEDNESDAY	SITESF	SITESPECIFIC	SITESPECIFIC	SIFIC	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC		
THURSDAY	SITESF	SITESPECIFIC	SITESPECIFIC	OIFIC	SITESPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC		
FRIDAY	SITESF	SITE SPECIFIC	SITE SPECIFIC	CIFIC	SITESPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC		
SATURDAY	SITES	SITESPECIFIC	SITE SPECIFIC	OIFIC	SITESPECIFIC	ECIFIC	SITESPECIFIC	OIFIC		
			EQUIPMENT SCHEDULE	HEDOLE						
SF-1	SYSTEMSPECIFIC	SPECIFIC	SYSTEMSPECIFIC	SYSTEM	SYSTEMSPECIFIC		SYSTEMSPECIFIC			
	•	•			•					

Table 8-16. Database Table for Heating and Ventilating System.

INSTALLATION: SITE NAME	AREA:	BLDG:	LOCATION:		ALARM DELAT ON STARTUP: 15	M STARTUP: 15				
				TSTEM OPERAT	STSTEM OPERATING PARAMETERS					T
PARAMETERS			COOLING				HEATING		SELECTED APPLICATION PROGRAMS	
	DEFAULT OCCUPIED SETPOINT	DEFAULT UNOCCUPIED SETPOINT	ALARH LIMIT SETTINGS	LIMIT	DEFAULT OCCUPIED SETPOINT	DEFAULT UNOCCUPIED SETPOINT	ALARM LIMIT SETTINGS	DEMAND LIMIT SETPOINT	SCHEDULED START/STOP OPTIMUM START/STOP ECONOMIZER	н н
MIXED AIR TEMP	PERSEQUENCE		SP (++-) %DEG. F		PERSEQUENCE		SP (++-) XDEG.F		VENTILATION/RECIRCULATION HOT DECK/COLD DECK TEMPERATURE RESET	H
									REHEAT COIL RESET	
SPACETEMP	XXDEG.F	XXDEG.F	SP (++-) % DEG. F		XXDEG.F	XXDEG.F	SP (++-) XDEG.F		BOILER MOMITORING & COMTROL CHILLER SELECTION	
SUPPLYTEMP			8XDEG.F(LO)				XXDEG.F(LO)		CHILLED WATER TEMPERATURE RESET	
111111111111111111111111111111111111111			OFF BOOK				OH #00 0		COMDENSER WATER TEMPERATURE RESET	
LOW TEMP DEVICE			XXDEG.F				XXDEG.F			
									REFER TO SEQUENCE OF OPERATIONS FOR ADDITIONAL SOFTWARE, SETTINGS AND OPERATIONAL REQUIREMENTS	(
									DEMAND LIMITING	ń
									SUMMER STEP 1	н
									SUMMER STEP 2	
									SUMMER STEP 3	
									WINTER STEP 1	н
									WINTER STEP 2	
									COMPANY SERVINGS	
			OCCUPANCT SCHEDULE	CHEDULE						
DAT OF WEEK!										
HOLIDAT	OCCUPIED	OCCUPIED PERIOD 1	OCCUPIED PERIOD 2	ERIOD 2	OCCUPIED PERIOD 3	PERIOD 3	OCCUPIED PERIOD 4	ERIOD 4		
SUNDAY	SITE SPECIFIC	PECIFIC	SITE SPECIFIC	CIFIC	SITESPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC		
TUESDAY	SITE SPECIFIC	PECIFIC	SITESPECIFIC	CIFIC	SITE SPECIFIC	ECIFIC	SITE SPECIFIC	CIFIC		
WEDNESDAY	SITES	PECIFIC	SITESPE	CIFIC	SITESP	ECIFIC	SITE SPECIFIC	CIFIC		
THURSDAY	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC	SITESP	ECIFIC	SITESPECIFIC	CIFIC		
FRIDAY	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC	SITESP	SITE SPECIFIC	SITE SPECIFIC	CIFIC		
SATURDAY	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC	SITESP	ECIFIC	SITE SPECIFIC	CIFIC		
Ношраў	SITES	SITESPECIFIC	SITESPECIFIC	CIFIC	SITESP	ECIFIC	SITE SPECIFIC	CIFIC		
			FOUIPHENT SCHEDULE	HEDITE						
EQUIPMENT MAME	CAP	CAPACITT	HOTOR HP	HAHUFA	MAMUFACTURER		MODEL/SERIES			
SUPPLYFAN(SF-1)	SYSTEM SPECIF	SPECIFIC	SYSTEMSPECIFIC	SYSTEM	SYSTEM SPECIFIC		SYSTEMSPECIFIC			
									•	